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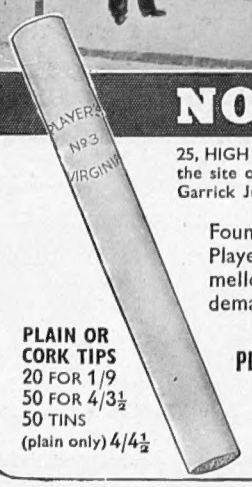

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HOME AT LAST! With the quays packed with naval vessels lying moored three deep, further vessels continue to arrive full of troops from Flanders. These men are getting their first sight of England after withstanding almost superhuman hardships in their long battle

TRANSFERRING FROM SHIP TO SHIP: A contingent of the B.E.F. passing from one destroyer to another in order to reach the packed quay. Every man is carrying his full equipment, which fact refutes the German lie that the evacuation consisted of one headlong flight

THE B.E.F. COMES ASHORE

Scenes at a South-east Coast Port

ON BOARD A DESTROYER: This picture was taken in mid-Channel as the destroyer steamed at full speed for England. The method of embarkation has been for the troops to be marched down in small bodies to the beaches of Dunkerque and taken off in small boats to the larger craft awaiting them. All types of vessels, from pleasure boats to Channel steamers, were put into service to bring the men home, braving the fury of Nazi air attacks

THE RETURN OF THE

A FLYING OFFICER WAS AMONG THE RETURNED: HE CARRIED HIS FLYING HELMET AND OVERALLS

DISHEVELLED AND TIRED, THE MEN COULD GIVE A CHEERY REPLY TO THEIR WELL-WISHERS AS THEY PASSED THROUGH WAYSIDE STATIONS

THIS GROUP OF THE RETURNED FROM FLANDERS AND FRANCE WERE IN MERRY MOOD WHEN THEY REACHED A TERMINUS STATION: ALL WERE CARRYING RIFLES

SOLDIERS FROM FRENCH DIVISIONS LANDED IN ENGLAND WRITE HOME. *On left*—TWO STUDIES OF FRENCH FIGHTING MEN, ONE WEARING A BUMPER HELMET OF THE FRENCH MECHANISED ARM

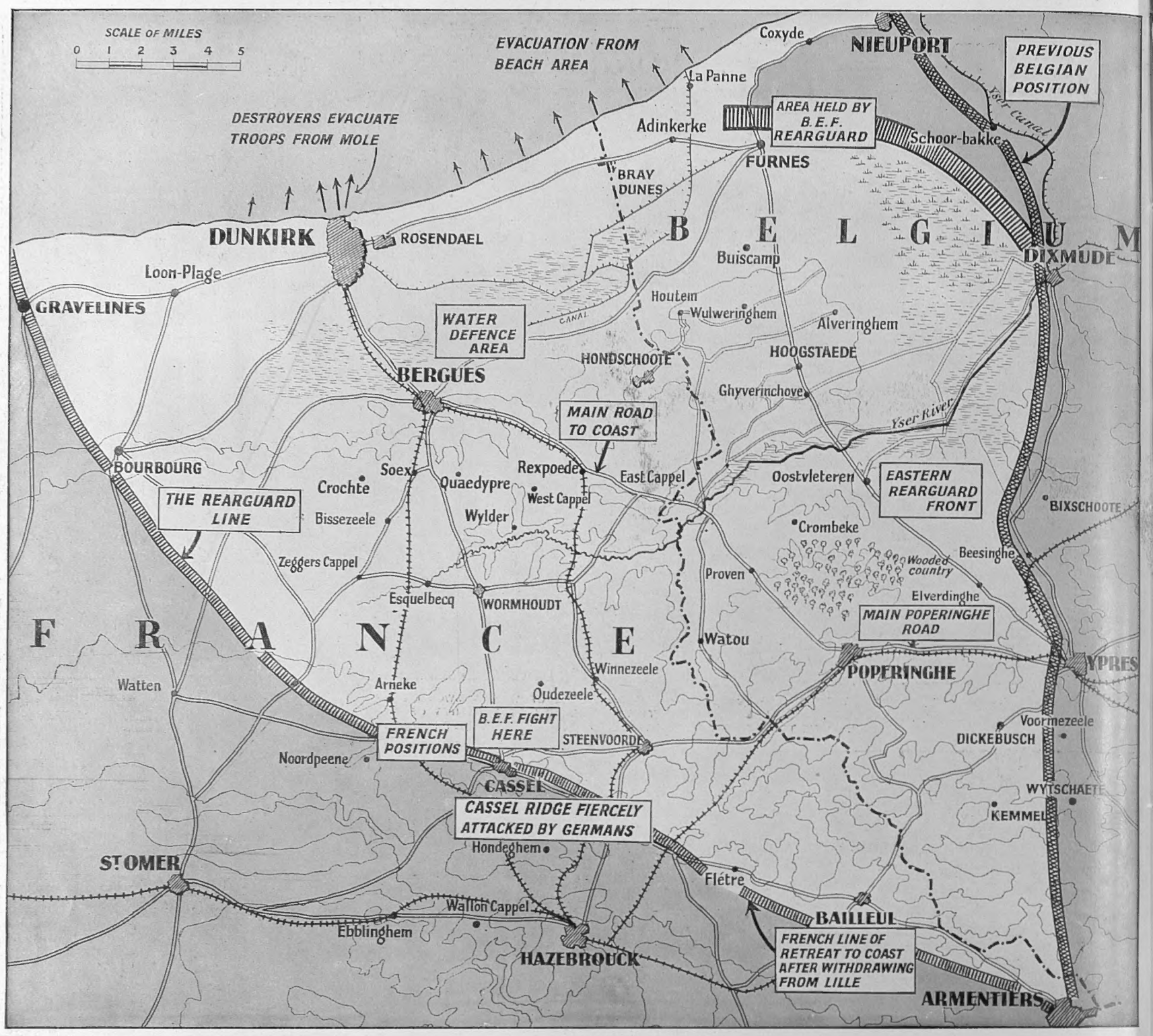
B.E.F. from Flanders and France: Scenes En Route to Home Stations

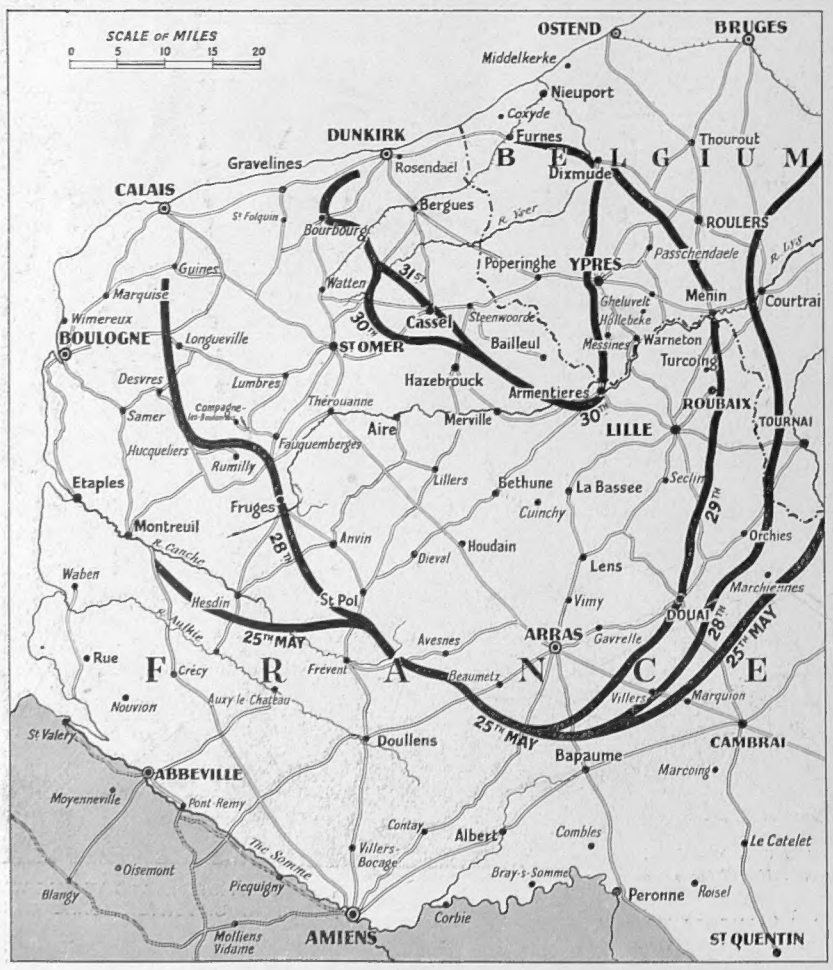
SOME OF THE RETURNED CARRIED SOUVENIRS OF WAR, A SWORD OR A HELMET, ONCE BELONGING TO THE ENEMY. THESE TROPHIES OF WAR WILL SERVE TO REMIND THEM OF THE EPIC BATTLE OF THE LAST FEW DAYS

WITH HIS HELMET STILL CAMOUFLAGED, THIS MEMBER OF THE B.E.F. ARRIVED AT A LONDON RAILWAY STATION

B.E.F. OFFICERS HAVE A LIGHT LUNCH AT A WAYSIDE STATION ON THEIR WAY FOR A BRIEF LEAVE. MANY OF THE OFFICERS WORE THEIR TUNICS AND BATTLE TROUSERS. ALL BORE SIGNS OF THE LAST TREK TO THE COAST

A STAFF OFFICER CALLS AT THE WAR OFFICE IN UNCONVENTIONAL GARB





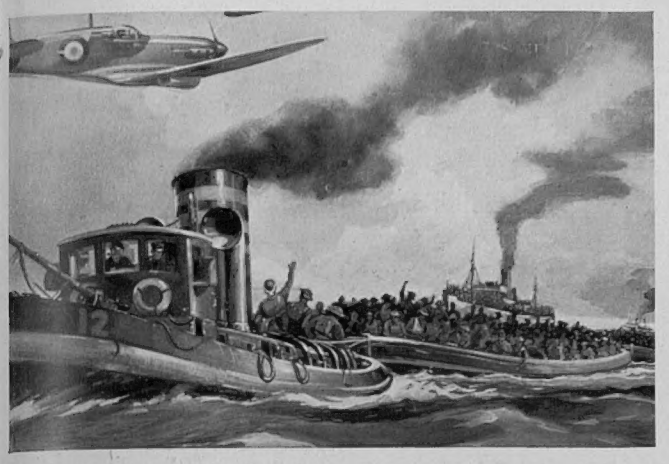
THE EVACUATION TRIANGLE THROUGH WHICH THE ALLIED ARMY OF THE NORTH RETREATED TO DUNKERQUE: The area of the great rearguard fight is here shown between the lines extending from the Nieuport–Dixmude arc southwards through Ypres to Armentieres, then north-westwards to the Cassel ridge, for which the Germans made such a fierce onslaught. The French were bravely holding off the German thrust from the south while they made their way steadily towards the Dunkerque area. Some fierce actions took place around Kemmel and Cassel

On left—THE FORMATION OF THE "GAP" IN THE BAPAUME AREA: After the break through on the Sedan sector, the German mechanised thrust bore down on the Tournai, Lille, Cambrai, St. Quentin line. The heavy weapons succeeded in breaking their way westwards through the Bapaume Corridor and in resisting the attempts of the Allies to close it. This led to a further closing in of the Allied lines. Menin, Lille, Arras, were all given up as the retreat from the first forward position began. As the German attack developed, the line took up positions behind Ypres and Armentieres. A wide swath of territory had to be gradually surrendered in the south

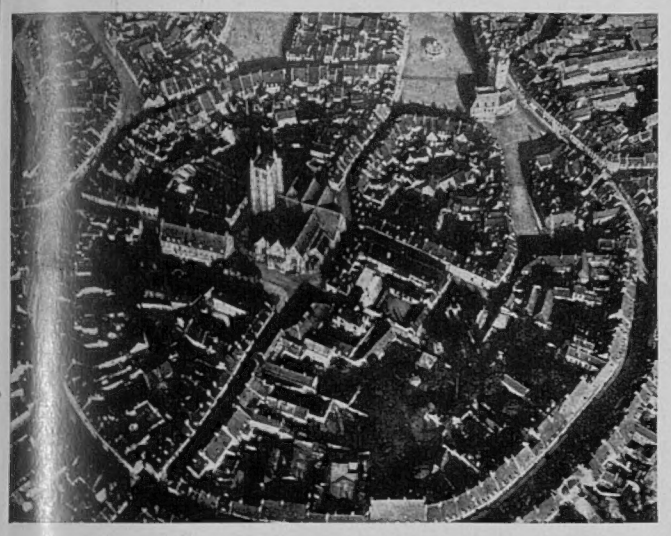
Above—THE WATERS PLACES most as as the sandy men wa either or went Rescues

THE RESCUE of the B.E.F.

The Epic of Dunkerque and the "Corunna" Line

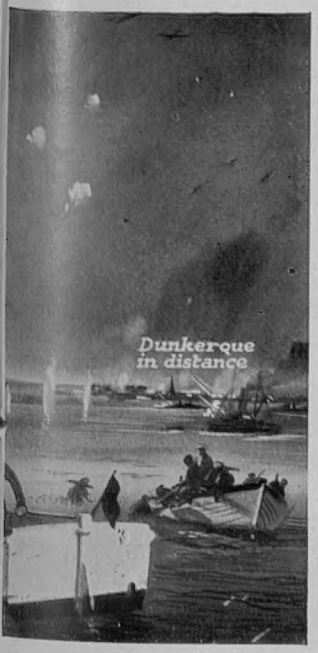


ONE OF THE STRANGEST SIGHTS of the odd assembly of vessels which took part in the rescue of the Allied Army from Dunkerque was a powerful tug hauling a line of barges, all crammed with men. The glassy sea permitted such craft to be used

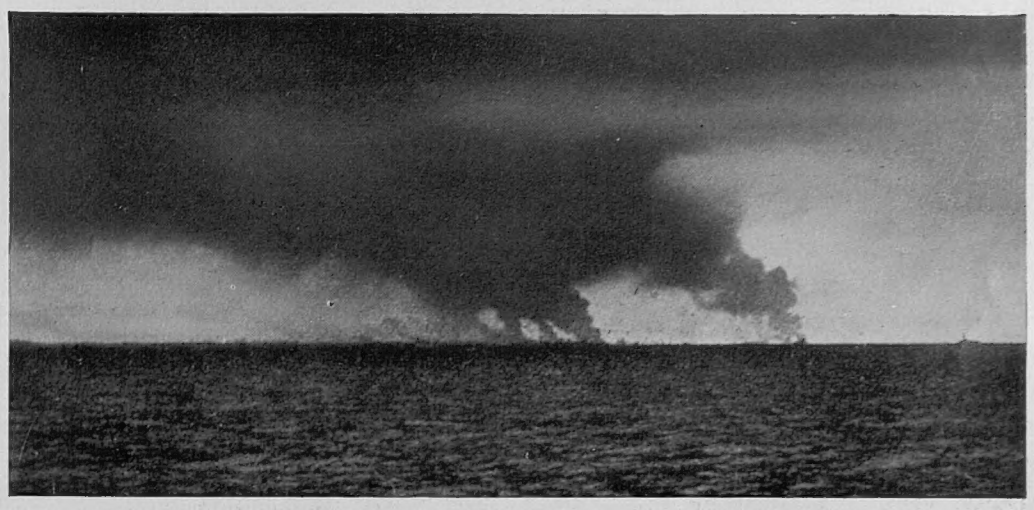


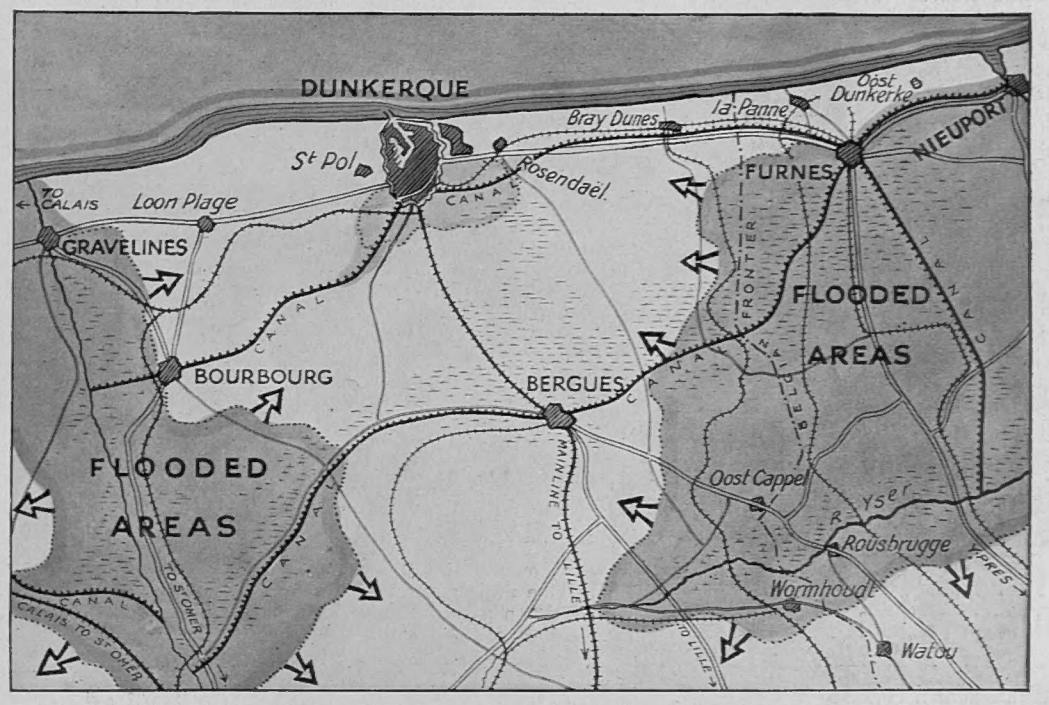
THE LITTLE TOWN OF BERGUES with picturesque streets and squares, all packed within ancient fortifications, lay in the path of the retreating troops

The incredible happened last week—the British Expeditionary Force extricated itself from a triangle of Flemish and French territory at which the enemy was battering with all his might. By maps and diagrams an endeavour is made to convey some first impressions of this great event

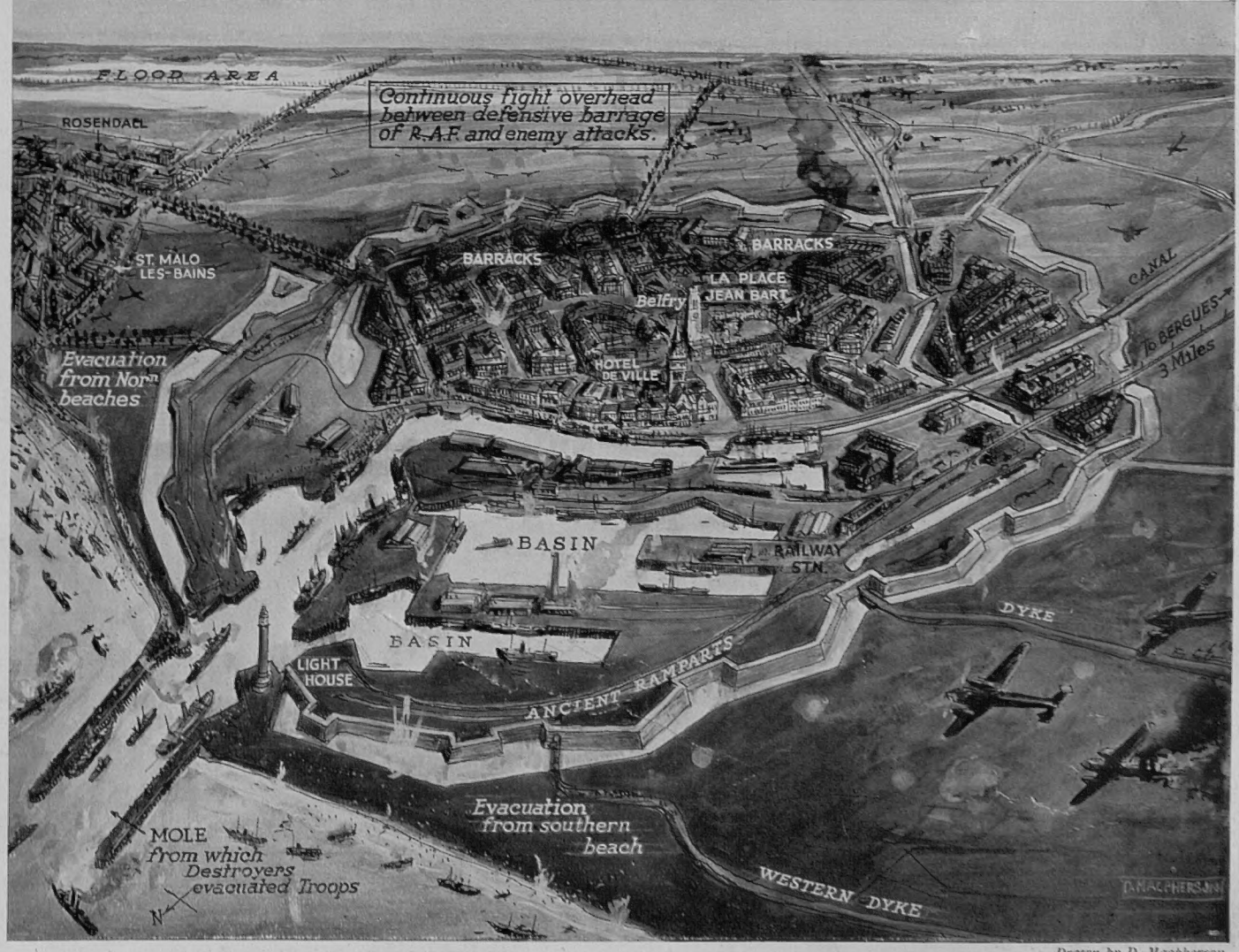


RESCUE FROM THE SHALLOW OFF BRAY DUNES AND OTHER NORTH OF DUNKERQUE: The tonishing scenes were witnessed men of the B.E.F. reached the shores outside Dunkerque. The ded out to small boats which conveyed them to bigger craft off themselves for British ports. also took place to the south





THE NATURAL DEFENCES OF DUNKERQUE through which tens of thousands of Allied troops plodded during the week-end. The existence of low-lying meadow land, capable of being flooded, added greatly to the defencibility of the place. The roads of the district lead through this flat country. *Top*—The appearance of the northerly French shore at night has been remarkable. Flashes of light here play on the smoke drifting down the Channel—a great pall hung over the port itself

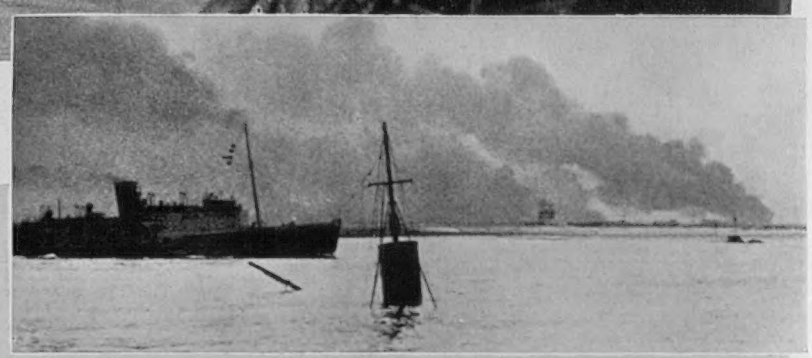


Drawn by D. Macpherson

WHERE THE DESTROYERS TOOK OFF SO MANY TROOPS—THE HARBOUR OF DUNKERQUE: The destroyers, which have done such a fine piece of work off the shallow waters of northernmost France, had to work chiefly from the harbour quays. The mole stood up to terrific shelling. Right in the centre of the town is the Place Jean Bart, commemorating France's naval hero (1651-1702). Beyond the ancient ramparts lies a belt of flat country with a number of canals. Railways lead to St. Omer, Ypres, and Nieuport

THE EPIC OF THE DUNKERQUE BEACHES

How the men of the B.E.F. waded out through the shallow waters off the French shore is shown in this direct camera record. In the background are the Bray dunes



THE LATER STAGES OF THE EVACUATION: BRITISH AND FRENCH TROOPS MASSING ON THE SHORE IN READINESS TO EMBARK

As the days wore on, the stream of soldiers reaching Dunkerque increased in volume, especially when the French forces began to arrive. It was necessary to clear the air for the protection of these masses. More R.A.F. fighters poured over to the beaches and, says Mr. Churchill, "our Air Force decisively defeated the main strength of the enemy Air Force." *Above on right*—A river steamer, passing two sunken steamers, making for home with men on board

THE NAVY'S PART IN THE GREAT EVACUATION

STANDING ROOM ONLY ON THE DECK OF A BRITISH DESTROYER

Every day during the latter half of last week the stream of men of the B.E.F. continued to reach this country. The men, one and all, were loud in their praises of the work of the Royal Navy, who backed in fearlessly to the shelled and bombed moles at Dunkirk. The waiting men swarmed on to the destroyers' decks until they could hold no more. Vessel after vessel would pull out, only to be replaced by others. Here is a typical scene before the men disembarked at a British port

Drawn by Montague Dawson

BRITISH DESTROYERS EVACUATE THE MILITARY FORCE AT BOULOGNE: Under fire from guns posted on the heights overlooking the harbour, the men stood waiting on the quaysides at Boulogne until the destroyers could come alongside and take them off to safety. The operation went on until 11 o'clock at night when a final couple of destroyers nosed in and took the waiting soldiers aboard

A woman ambulance driver was among the rescued from Boulogne when the evacuation was decided upon

IN a week of stirring deeds the great evacuation from Dunkirk is apt to overshadow everything else. We must not, however, let go unrecorded the brilliant work of the Navy and a demolition party, who had to examine the possibilities of holding Boulogne.

A combined party of seamen, Royal Marines, and small detachments of Royal Engineers was rushed across the Channel, reaching the main jetty at Boulogne in the morning. The naval party was landed to hold the railway station, fit demolition charges, and "earmark" bridges, trains, lock-gates and everything which should be destroyed when the time came.

BRINGING DOWN THE WOUNDED TO THE SHIP'S SIDE AT BOULOGNE: As the wounded came in they were taken to waiting vessels. The situation at Boulogne was an extremely difficult one as the whole of the dock and harbour district is overlooked by higher ground. There were a considerable number of stretcher cases which had to be dealt with, as seen here both *above* and *on left*

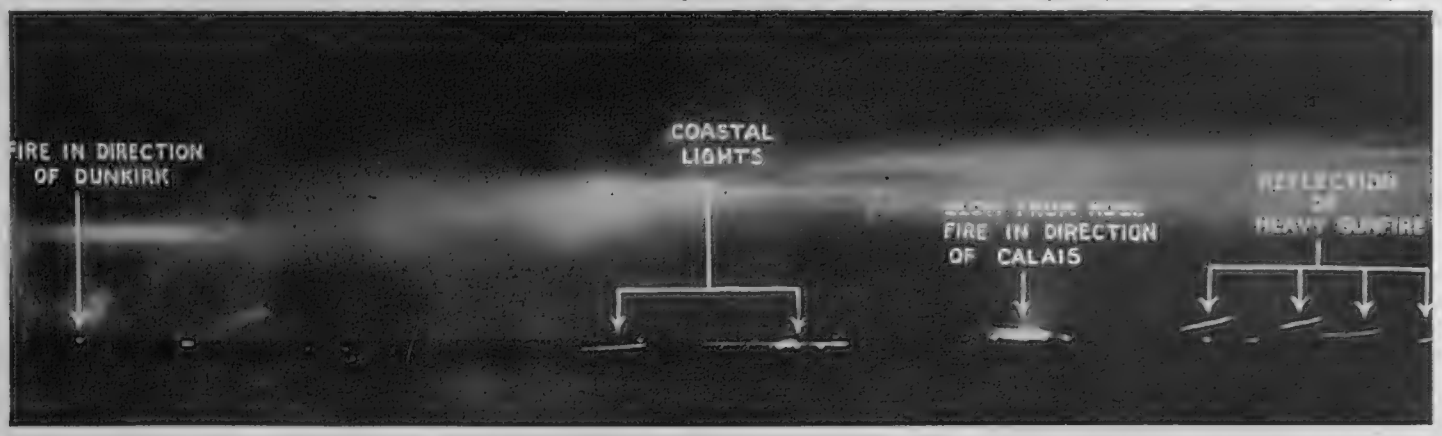
Owing to the position of the Germans all around the town, it had been impossible to send field guns or other assistance. Consequently, the troops could not hold out indefinitely against the enemy's armoured vehicles. Small parties of Germans were already coming down streets on the outskirts of the town.

The destroyer bringing the naval demolition party had already left under orders. She was relieved by another, which, in turn, was relieved by a third. Naval and military officials conferred and soon came to the conclusion that the town could not be held. Demolition of all the bridges and important points was decided upon and small parties of seamen went out with parcels of explosives. The enemy was closing in.

Our defence forces were fired upon furiously by enemy field guns concealed on a wooded hill to the north of the harbour and

BOULOGNE'S GREAT STORY

How the Last Soldiers and the Demolition Party Were Carried to Safety by Some Ten Destroyers



THE FIRING ON THE FRENCH SIDE OF THE CHANNEL SEEN AT NIGHT: The firing of guns and the burning of buildings can be plainly seen from the Channel shore

overlooking it, and by a number of pom-poms and machine-guns in the second storey windows of an hotel. The range was no more than 800 yds. Several enemy heavy tanks came down the hill and on to the foreshore. . . . All this time the destroyers' 4·7-in. and 4-in. guns, pom-poms and machine-guns were in hot action, plastering the hillsides and the German field guns at point-blank range, and blasting the hotel opposite until the pom-poms and machine-guns were silenced. The second shot at the tanks registered a direct hit which caused one of them to capsize. It went spinning over and over like a child doing a cart-wheel. Another was knocked out with a direct hit, and others retired with celerity.

At length the order to demolish was given and all important points were blown up. Troops kept pouring in while these operations were proceeding and these men had to be evacuated by destroyers, who kept replacing one another until 11 p.m. Members of the demolition party waited until the last troops had crossed the bridge.

CARRYING THE WOUNDED ON TO WAITING VESSELS AT BOULOGNE: The last hours were very strenuous. Wounded men (stretcher cases) were coming down from the interior lines

Drawn by E. Lambert

A BIRD'S-EYE VIEW OF THE OPERATIONS AT BOULOGNE—THE RESCUE OF TROOPS AND THE DEMOLITION OF THE DOCK GATES, BRIDGES, ETC.: This landscape diagram of the operations at Boulogne shows the main operations during the day. The work of the destroyers was remarkable; they returned again and again under fire from land batteries and the air to fetch off both fit and wounded men. The cover offered by the railway buildings was of dubious value, but the men waited with great calmness for the return of the destroyers which came alongside and took up such numbers that their decks were crammed to the uttermost

WATCHING A WIDE STRETCH OF COUNTRY FOR ANY SIGN OF ENEMY ACTIVITY: The first weeks of intensive war on the Western Front produced a type of warfare which entailed a watchfulness on the part of the defence of a quality hitherto unknown. The depth of the vulnerable zone was increased by the new technique. The heavy attack from the air had to be met by a countervailing move by the air fighters of France

THE LEADER OF A MECHANISED COLUMN: The roads of Northern France were alive last week with movements of mechanised columns. Here is a typical leader of an armoured convoy wearing his bumper helmet and scarf. *On right*—In the shelter of a wood these petrol lorries are resting

THE VITAL QUESTION OF ESSENCE FOR FRENCH MOTORISED COLUMNS: Here is the way in which petrol is carried in special waggons which have to travel with speed close behind the motorised columns. For these vehicles and the tanks themselves consume petrol at an enormous rate. *On right*—French infantry occupying an improvised position running along a farm ditch

IN THE FRENCH WAR ZONE

With the Gunners and the Motorised Columns

A GERMAN BOMB CAUSES EXTRA WORK FOR THE FRENCH SIGNAL CORPS: The blast from a bomb has knocked this road telegraph pole almost to the ground, but it is held up by the wires which are still unbroken. German bombers and tanks in their first onslaught caused much confusion, but with every day that passed, the French command was given the welcome opportunity of re-orientating its forces

EVERY ROAD MUST BE GUARDED IN THE WAR ZONE: Here the guard are giving the salute before taking up their day's task. But for the barbed wire, it is a typical little French road scene among larch-covered hills. *Below*—A heavy French tank advancing over meadow land to a position where action may be expected

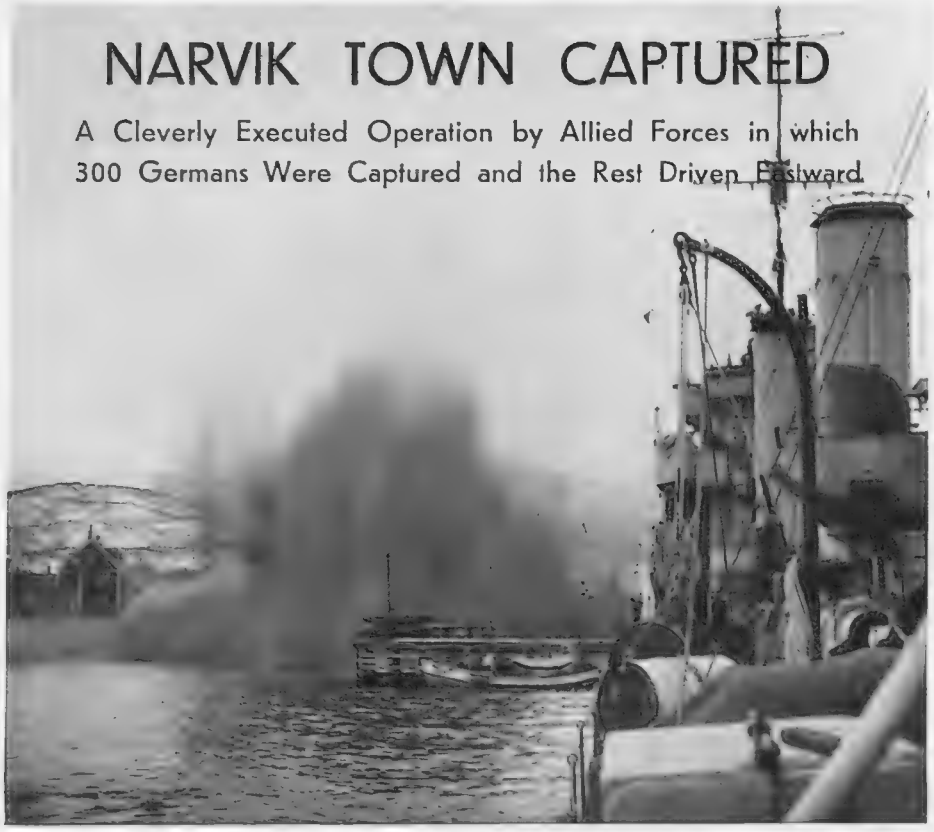
SCREENED HEAVY GUNS IN ACTION ON THE FRENCH LINE: The French Army was last week building up its line along the Somme and the Aisne. Between the two rivers was a space which was held in force. The Somme, with its complex of rivers, canals and marshland, affords good protection against heavy tank assault

A FAITHFUL "75," WELL SCREENED FROM OBSERVATION, STANDS READY FOR ANY ENEMY ADVANCE: The 75-mm. gun of 1940 is mounted on big rubber tyres allowing of rapid transit along the roads to any required position. For rapidity of fire, it is perhaps unbeaten still by any later artillery

THROUGH A MODERN PERISCOPE SIGHT THIS FRENCH GUNNER TAKES AIM: Here in close-up detail one can examine the cunning periscope affixed to the gun. The Allied artillery contains some of the best weapons which modern gunnery science has devised. Massed air attack put it to a severe test

NARVIK TOWN CAPTURED

A Cleverly Executed Operation by Allied Forces in which 300 Germans Were Captured and the Rest Driven Eastward



THE BRITISH STATION AT HARSTAD BOMBED: Harstad, a position on one of the outer islands just to the north of Ofoten Fiord, where certain of our ships have forgathered, was visited from time to time by German planes operating from advanced Norwegian bases. H.M.S. *Ardent* on right was doubtless the objective of the enemy bomber

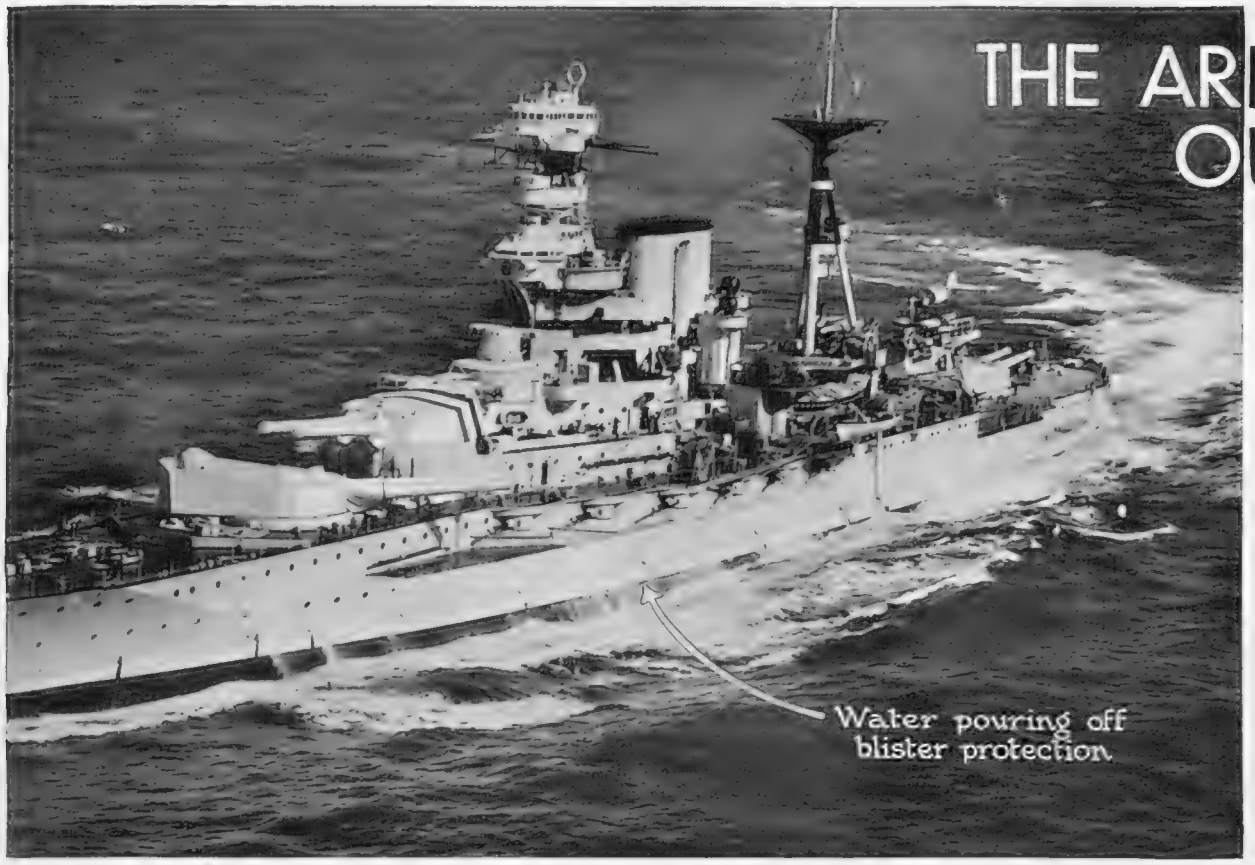
HARSTAD TOWN BOMBED: This little timber-built town of Harstad has had to endure the visits of German bombing planes owing to the presence of Allied forces in the neighbourhood. At the same time German positions at Narvik were being bombed by our aircraft

THE NAVY ACTIVE DURING THE NARVIK OPERATIONS: During the endeavour of the Germans to supply their beleaguered forces at Narvik several relief ships were knocked out. This cruiser of the Southampton class was patrolling near Vaagsfiord

A GIBRALTAR-LIKE HEADLAND FACING NARVIK TOWN: This headland, known as the Beisfiord-totta, stands at the head of the Beisfiord, which is in immediate proximity to Narvik Harbour. The Germans are reported to have retreated eastwards, that is, in the direction of the hills shown in the distance to the left in the above picture

UNWELCOME ATTENTIONS WHICH OUR DESTROYERS ENDURE: The German bombers have a particular liking for trying to catch one of our vessels in enclosed waters when they are guarding ships unloading and so forth. These three bombs were aimed at a destroyer patrolling near Molde, but missed their objective and fell into the water throwing up columns of spray

SNOW STILL ON THE HILLS AS THE BOMBING GOES ON: Up at Narvik the snowfall held on for many days; the later operations were fought out during the ensuing thaw. British, French, Poles and Norwegians took part in the final attack in which the Norwegians distinguished themselves. The Germans were apparently seeking to move along the railway, but the Norwegians are now covering a large section with guns



AS H.M.S. "BARHAM" ALTERS COURSE THE WATER POURS OFF HER BIG "BLISTERS"

The sides of several of the big battleships are protected by these external "blisters"; in the latest designs the blisters are worked into the minute sub divisions of the hull. The barbettes and the conning tower are also armoured in addition to the internal and deck armament shown in diagrammatic fashion on the succeeding pages

THE ARMOUR OF OUR NAVY

A Special Sphere Section Dealing with the Important Question of Armour Protection

By FRANK BOWEN

THE first two problems which confront the naval architect who is designing a man-of-war are the best means of permitting his ship to get at the enemy, and to sink her when she has made contact, but the third is to keep the ship herself afloat, and this side of the design has provided subject matter for infinite argument for many years past which the experience of this war is increasing.

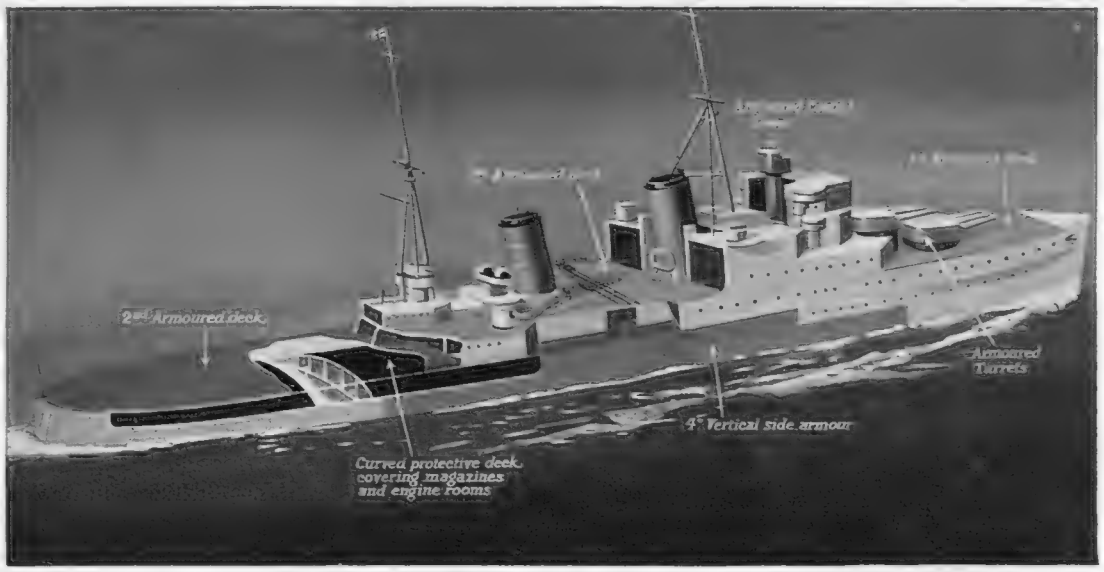
The idea of keeping a ship afloat with armour of iron or steel was first really accepted at the time of the Crimean War. Before that many far-sighted men had ideas on the subject, but they were generally rejected and the navies of the world trusted to the stout oak sides of their ships to keep out enemy shot. Small craft which had to be rapidly and cheaply built of inferior woods had to take their chance like the destroyers of to-day. Yet the idea goes right back to the third century before Christ when Syracuse plated a fighting galley with lead, an experiment which was repeated by the Emperor Charles V with the famous *Santa Ana* in 1535, while in the fifteenth century the Lombards built a "tortoise galley" against the Venetians, completely protected by a dome of iron, and in 1592 the Japanese built an almost precisely similar vessel against Korea, a ship whose remains were found embedded in the mud during the late war.

In the first part of the nineteenth century the British Admiralty was particularly opposed to armour, for it was associated with the iron-hulled ships which were their *bête noir* and they had gone to great trouble to carry out experiments which were carefully arranged to fail and to show that iron ships' sides—not armour plate it should be noted—were perforated, and splintered more easily than wood.

The Crimean War shook the foundations of this policy. At Sinope the Russian shells had set the Turkish wooden ships on fire one after the other, and when the French and British came into the fight their wooden walls had been very badly mauled by Russian forts. Napoleon III therefore listened to the proposal for iron-clad floating batteries for future operations, including the reduction of the fortress of Kinburn, and ordered five of them—clumsy, square and slow, but having all their upper works protected by 4-in. iron which proved remarkably effective against the Russian fire. He lent their plans to the British Navy in exchange for those of our famous 68-pdr. gun, and the Admiralty ordered similar vessels. They were not completed in time for the war, but the *Thunderbolt's* hull is still a floating pier at Chatham.

The French *Gloire* of 1859 and H.M.S. *Warrior* of 1860 started the construction of big sea-going iron-clads and they were rapidly followed by many more, some having wooden hulls and some iron hulls with a wooden backing between the armour belt and the hull to absorb the shock. In the early ships the protection was confined to a belt on the waterline and a conning tower for the senior officers in action, and as all naval battles were fought at point-blank range, when the flight of the shell was practically horizontal, the vertical belt only stretched from a short distance below the waterline to a point sufficiently high to allow for the roll of the ship and the fullness of her bunkers and storerooms. In the pioneer *Warrior* it was only a patch amidships; later it covered the whole waterline and then the gun deck. Rolled iron was found to have roughly the same value as hammered and was easier to produce; during the American Civil War they used railway iron for the protection of warships. As the heavy armament was increased, and carried on two decks, the belt was carried up the side of the ship to form a central battery amidships, while armoured bulkheads were fitted across the ship to prevent her being raked from end to end by enemy fire.

(*Continued on following page*)



HOW A CRUISER IS PROTECTED BY ARMOUR ON SIDES AND DECK: The cruiser has side armour which is often very obvious even to the layman's eye. The internal arrangements for protecting the vitals of the ship are here shown

ONE CAN SEE THE SIDE ARMOUR OF THIS CRUISER WITH THE NAKED EYE: Here in the case of H.M.S. *Newcastle* one can see the light catching the edges of the side armour. The question of how much armour a cruiser can carry is one of nice balance between speed and protection in relation to the special work a cruiser has to do

IN THE CASE OF THE BATTLE-CRUISER "REPULSE" SOME OF HER ARMOUR IS ALSO VISIBLE TO THE NAKED EYE

In this view of the starboard side of H.M.S. *Repulse* a big expanse of heavy armour is visible running forward as far as the foremost turret carrying a pair of heavy guns. For the arrangement of the other armour *see* diagrams on the following pages

LOOKING DOWN ON THE ANTI-TORPEDO BLISTERS OF H.M.S. "WARSPITE" (OF NARVIK FIORD FAME)

The wide blister protection is clearly evident from this overhead view. Note the size of the two men standing on the port side nearly amidships

THE ARMOUR OF OUR NAVY

How it is Disposed on the Exterior and in the Interior of Battleships and Cruisers

(Continued from preceding page)

Against the guns of that day this protection was good enough for a capital ship, but if it was thick enough to be effective, belt armour was too heavy to be given to cruisers, which had to cut their weight wherever possible in order to obtain their speed. After iron-clads had been on service for several years horizontal armour in the form of a curved deck was tried for cruisers, meeting the sides of the ship well below the water-line but being arched so that the centre of the deck was well above it. The idea was that the top-sides could be riddled by enemy fire but that the ship would still float with her machinery working, while projectiles which hit the curved deck were bound to do so at an angle and would probably glance off. Ships so fitted were called "protected cruisers" and their protection absorbed far less weight than a belt would have done.

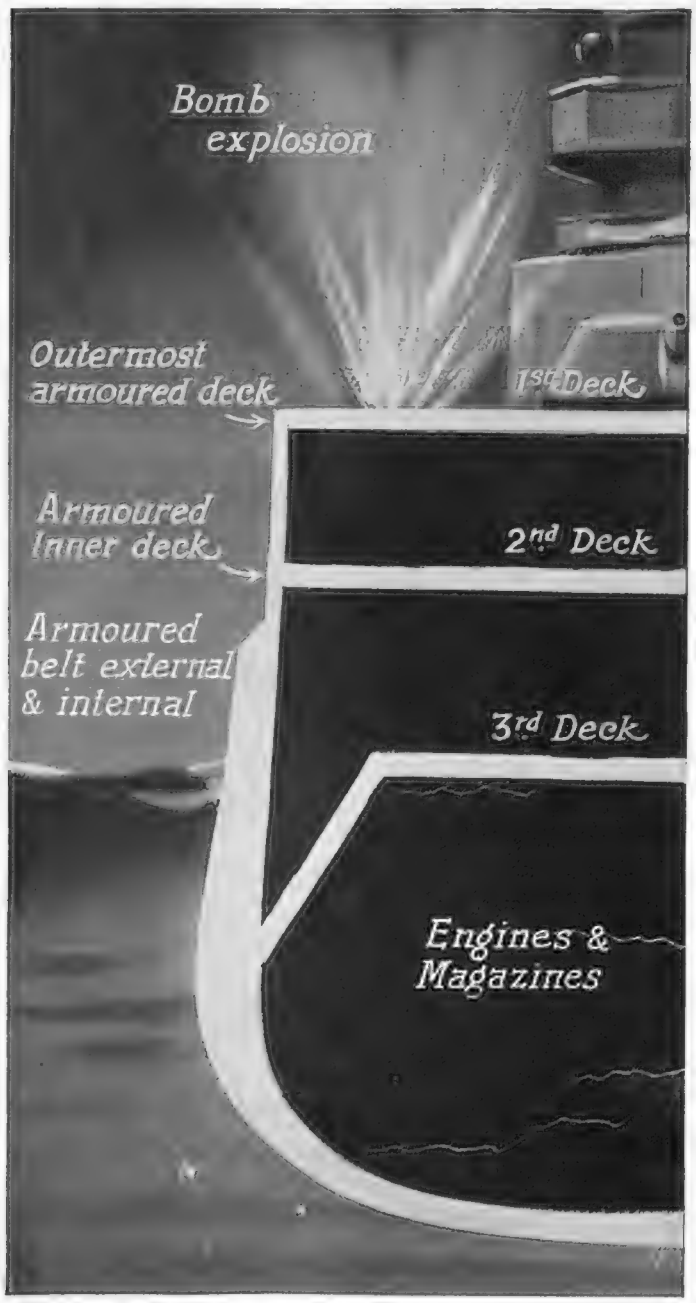
In capital ships this arched deck was soon combined with belt protection, the lower edge meeting the bottom of the belt, the crown being well above the waterline, and the angle between the two being filled with coal or in some navies cellulose in small compartments.

Gunnery continued to improve and when the iron belt reached 24 ins. in thickness its weight was getting impossible, however short it was, but the situation was saved by the development of steel for armour purposes. At first a steel face was fitted to an iron plate, called compound, but as steel became less brittle the iron was dropped and steel was used exclusively in various forms, that made by the Krupp process finally becoming universal.

The necessity of sub-dividing the hulls of merchant ships by bulkheads for purposes of safety had long been appreciated, and it was obviously even more necessary in the case of warships, so that many unarmoured bulkheads were added to the heavy ones to keep out raking fire. As a further subdivision a longitudinal bulkhead was fitted to some ships, but the weight of water on one side capsized H.M.S. *Victoria* when she was rammed in the Mediterranean, so the idea was abandoned for some years but later revived with two longitudinal bulkheads, a reasonable distance from the side of the ship, as a protection against contact mine or torpedo. This principle was taken further during the late war with the external blisters, which proved wonderfully efficient with slow ships but which, when modified in order not to interfere with speed, failed to save the *Royal Oak* or *Courageous*.

Shortly before the outbreak of the late war the armoured deck of the protected cruiser type

HOW A BATTLESHIP'S ENGINES AND MAGAZINES ARE PROTECTE
SHELL AND BOMB—THE STERN HALF OF THE VESSEL SHO
SECTION REVEALING THE SPECIAL FORM OF THE THIRD INNERN

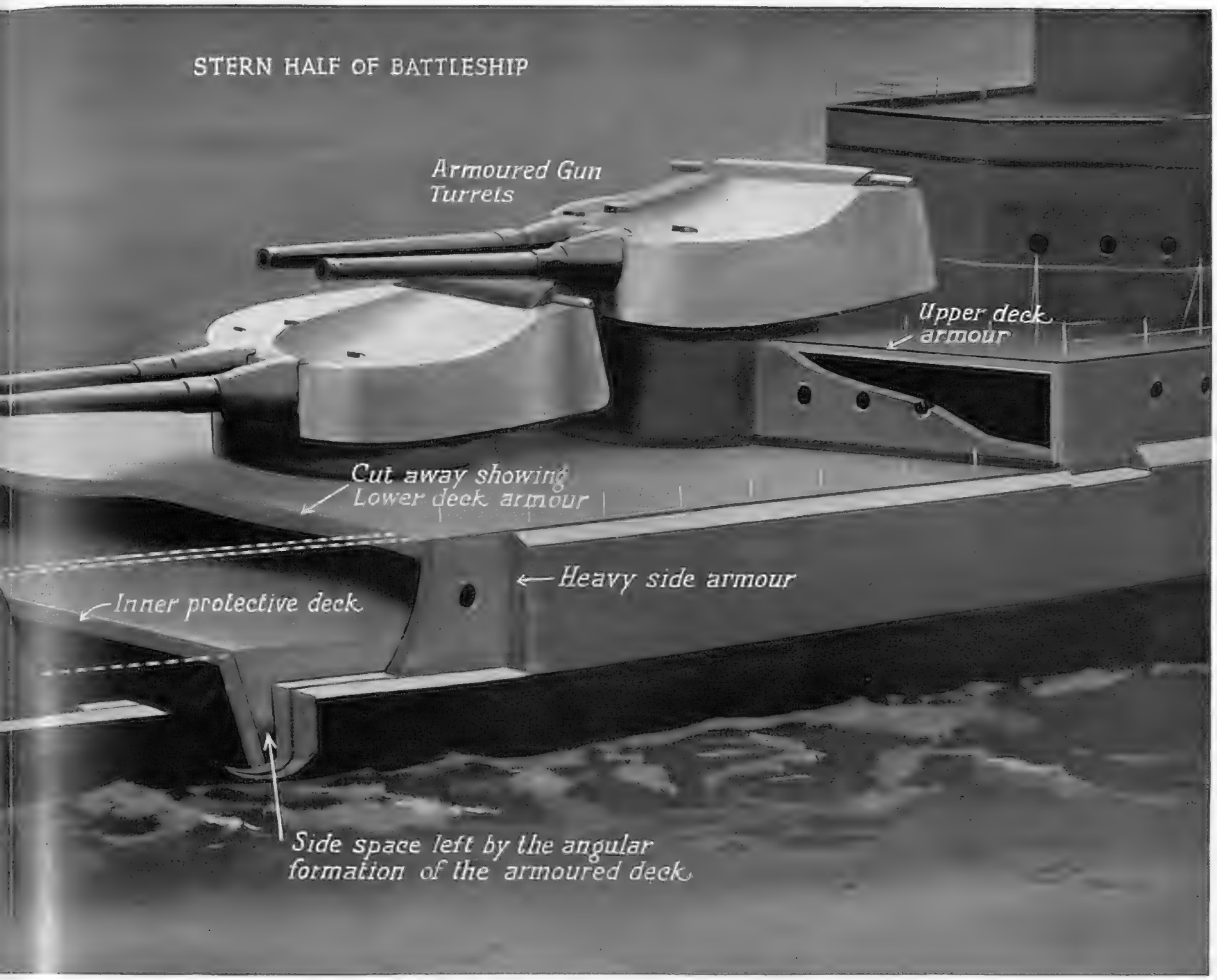


THREE PROTECTIVE DECKS GUARD THE VITALS OF A BATTLESHIP

This section of a battleship shows the two upper armoured decks which would help to stop a heavy bomb before it could reach the third deck which combines with the outer belt to give protection

THE EXTERNAL APPEARANCE OF THE PROTECTIVE BLISTER ON H.M.S. "QUEEN ELIZABETH"

Here the blister takes on an angular shape running well forward of the big forward turret. Both barbettes are armoured. One is slewed right round showing the rangefinder end facing the spectator



TECTED AGAINST SHOWN IN A NNERMOST DECK

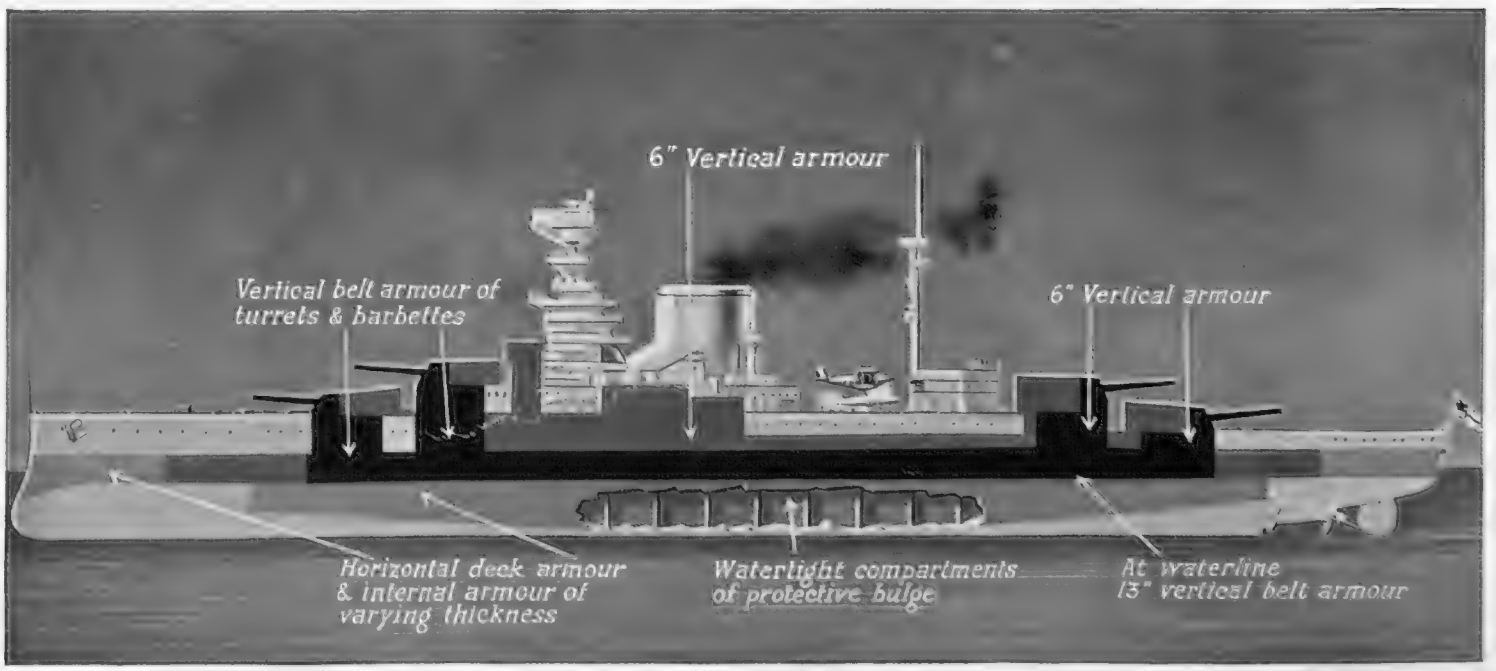
In addition to side armour and deck armour of an obvious kind, a battleship has an internal armoured deck of arched form. It is visible in the above sectional view. Its special form creates angular spaces on both sides of the ship; these spaces are usually filled with coal. The weight of this deck would be excessive if carried right from stem to stern, so it was shortened, the "soft" ends of the ship being protected by an armoured deck of horizontal form, now an invaluable adjunct in these days of intensive air attack

was reinforced by a small patch of horizontal belt alongside the machinery, 3 ins. thick to begin with, which was later extended to the bow on account of the liability of the ship's side plating forward being torn by the smallest of shells when she was in chase, when the torn plates would offer resistance to the water and pull down her speed immediately. The added weight had a serious influence on the ship's speed, but it was considered to be justified.

With various adjustments due to experience during the late war these principles still hold good. In capital ships the belt at its thickest point, the barbettes, the faces of the turrets and sometimes the conning tower are generally roughly of the same thickness, while the deck armour has been duplicated and greatly increased in thickness against long range shells and bombs and practically every type sees the sub-division improved.

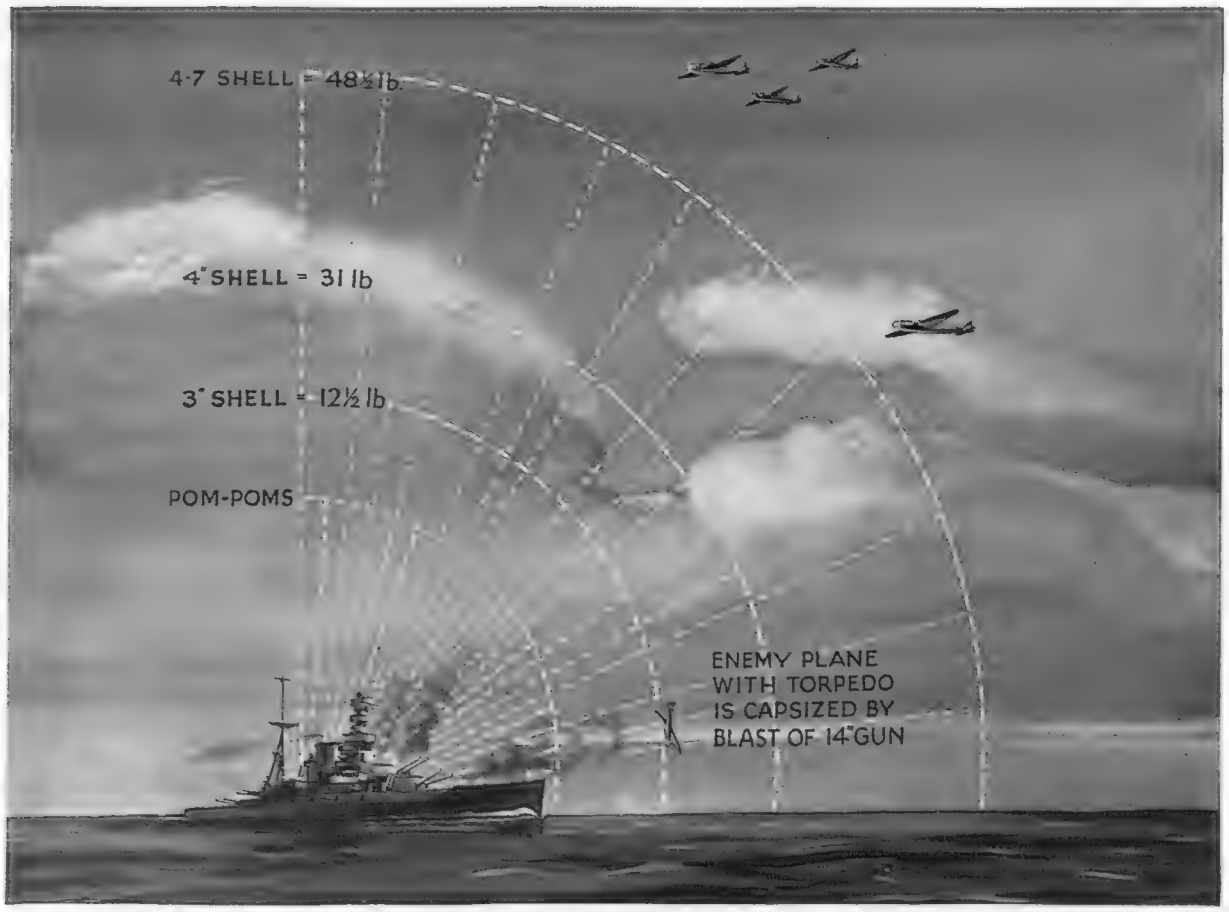
In other types, except destroyers, the principle adopted for the light cruisers before the late war has been followed almost invariably, although weight has to be saved where possible and great attention has to be paid to sub-division. In the British King George V class which is now approaching completion it is officially reported that much consideration has been given to armour and that its distribution is novel and believed to be the most effective possible.

While the armouring of capital ships would thus seem to be tolerably well settled, it still leaves open the question of the cruiser types which have to do so much work in modern naval warfare. Speed, fuel, gunfire, ammunition, planes and their catapults all demand their share of the weight available and are all indispensable, while the fact that cruisers often have to venture into the most dangerous waters, particularly with magnetic mines, demands weight for sub-division.



THE SIDE ARMOUR OF A BATTLESHIP AND THE WAY IN WHICH THE TURRETS ARE DEFENDED

The designer of a battleship has a very nice problem before him when he reaches the armour stage. A certain speed is required and the capacity of the vessel to go anywhere on the high seas has to be considered. The general disposition of the heavy armour in the main central portion of the hull is here shown



THE ANTI-AIRCRAFT PROTECTION PROPER OF A BATTLESHIP RANGES FROM POM-POMS TO 4·7s

This diagram shows approximately the areas of protective fire which a battleship relies upon for checking attack from the air. If the situation is getting hot, guns of the calibre of 8 ins. will be brought into play

THE NAVY DEFENDS ITSELF FROM THE AIR

A Varied Armament for Varied Needs

THE recent sinking of a number of British men-of-war of the smaller types by enemy aircraft, and constant enemy air attacks on warships and merchant ships of all classes, has naturally had a tendency to make many laymen ask whether the Navy is adequately provided with anti-aircraft defence for itself and the ships in its charge, but that question can confidently be answered in the affirmative although many professional men were doubtful a few years ago. The first few months of the present war have confirmed the lessons learned in the Spanish Civil War with the interference of the totalitarian powers, that air attack on warships at sea is of comparatively small danger to them and that even when they are at anchor the results are discouraging.

The first big German air action against British cruisers was off the Norwegian coast a little more than a month after war had broken out, when aircraft estimated by neutral observers to have been 150 in number attacked our force on and off for eight hours. Not one direct hit was scored, and although the enemy claimed great successes these were easily disproved, and they had to admit that six aircraft were lost. Not a single Allied warship of over 2,500 tons displacement has been sunk by German air bombs during the present war; H.M.S. *Rodney* had a direct hit from a heavy bomb but escaped with very little damage, and even when cruisers have been hit the harm done has been superficial. It is clear that the damage caused by an air bomb is generally far less than that caused by a shell of equal weight, and the aim cannot be nearly as accurate.

On the other hand, it must, of course, be admitted that warships of the destroyer and escort types have been sunk by bombs, or set on fire so severely that it was policy to sink them, but these have nearly always been more concerned with protecting their convoys instead of looking after their own safety and have succeeded in doing so.

Rapid manœuvring and use of the helm is recognised as one of the best protections against air attack, but an escorting vessel cannot do that and guard her convoy effectively at the same time.

It is to be feared that the German air service's lack of success in the late war tempted the British Navy to take that form of attack rather lightly; in those days any number of British ships were protected by 6-pdr. pop-guns only and nothing bigger than a 3-in. was considered.

The British County cruisers built under the 10,000-ton Washington rule carried four 4-in. anti-aircraft guns backed by four 2-pdr. pom-poms and twelve machine-guns, while the Italian ships of similar type and date mounted no less than sixteen 3·9-in. guns, two 3-in., four pom-poms and fourteen machine-guns, and the French carried eight 3·5-in., eight pom-poms and several machine-guns. On the other hand, we did not err without company, for although the Americans had a bigger gun in their 5-in. anti-aircraft they only mounted a few of them and the Japanese were content with four 4·7-in. guns for the same purpose. It was very largely a matter of calculating the chances, for anti-aircraft guns could only be fitted at the expense of other features.

EVEN THE HEAVIEST GUNS CAN BE USED IN CHECKING AIR ATTACK

If low diving is indulged in by the enemy the heaviest guns on a battleship will be employed, the blast being sufficient to blow over a troublesome enemy bomber

Some years ago the high-angle batteries of most British ships were increased, in most cases doubled at least, although it is a very difficult matter to place numerous anti-aircraft guns to the best of advantage, for in many designs it has proved fatally easy to mount too many, destroying their efficiency and field of fire. At the same time that the number of guns was increased there was a great improvement in range-finding and control, especially by the adoption of the predictor gear, and the percentage of hits increased in a manner only comparable to the improvement of naval gunnery under the urge of the late Sir Percy Scott in the early days of the present century.

Although only a proportion of the modern big ship's armament is labelled anti-aircraft, and is counted upon to defeat enemy attack, the 6-in. guns mounted as the main armament of numerous cruisers, and the anti-torpedo armament of capital ships, are given sufficient elevation in their mounting to be used against aircraft which are not directly overhead, and the same applies, to a rather more limited extent, to the 8-in. guns of the Washington cruisers and even to the giants mounted by modern battleships; the enormous blast from the muzzle can capsize a torpedo-carrying plane.

As regards the anti-aircraft armament proper, the main object is to get a rapid stream of light shells rather than a slow rate of fire with heavier metal; quite a small projectile will be fatal to a plane if a hit is scored. In the British Fleet the anti-aircraft guns are the 4·7-in., the 4·5-in., the 4-in. and in some old ships the 3-in. The pre-war 4·7-in. fired a 48½-lb. projectile, getting from twelve to fifteen aimed rounds off per minute, the 4-in. fired a 31-lb. shell, eighteen rounds per minute, and the 3-in. a 12½-lb. or 16-lb. according to its mark. The 4·5-in. gun and its ammunition is common to both Services. Our high-angle guns are usually mounted in the open in order to have the most efficient control, and latterly they have generally been mounted in pairs to secure their field of fire without interruption.

Backing the anti-aircraft guns, with an ability to put up a tremendous barrage, are the pom-poms, enlarged machine-guns firing an explosive shell which is quite sufficient to bring down or seriously damage the biggest of planes and which were introduced with great success during the late war.

The original single-barrelled pom-poms weigh 1 cwt. 3 qtrs., but are beautifully balanced on their mountings for rapid movement, and during recent years four-, six- or eight-barrelled poms-poms have been introduced according to the size and type of ship. They fire tracer shells with their ordinary projectiles like a machine-gun, so that adjusting the aim is like pointing a hose delivering a constant stream of water.

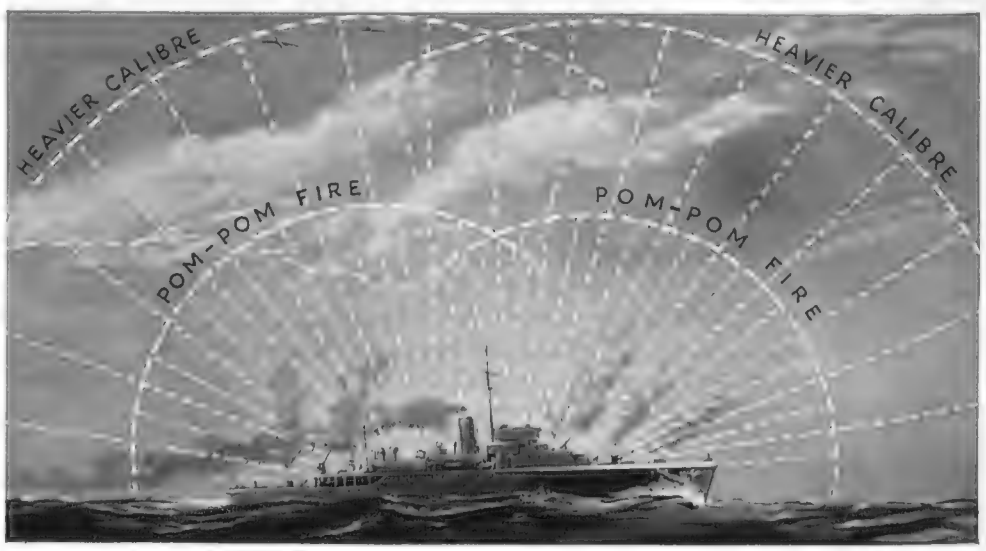
Finally come the machine-guns of various types and calibres, some firing the ordinary ·303 bullet of the Army rifle, and some a larger calibre.

If the ship has only herself to look after the attacking plane can only hope for success from one point directly astern of the ship, but this position can be worked out very much more easily on board the ship than in the plane and her defensive fire concentrated accordingly.

The chances of German planes, even in mass formation, sinking British men-of-war when they have only themselves to look after are, therefore, comparatively small, but when the warships are protecting their convoys the planes have a better chance.

The various types of escort vessels mount dual purpose guns, generally 4-in. but occasionally 4·7-in., the number varying from one to eight according to their type and size. The Bittern class was designed especially for anti-aircraft work, and the type was improved in the *Black Swan*, *Flamingo*, *Erne* and *Ibis*.

F. B.



THE ANTI-AIRCRAFT FIRE FROM ONE OF THE SPECIALLY-ARMED VESSELS

The Navy possesses a number of these vessels in order that they may be able to provide effective and concentrated anti-aircraft fire

RESCUED FROM THE GERMANS: A Dutch Cruiser Towed to a British Dockyard for Completion

Drawn, from materials supplied, by Montague Dawson

A SMART PIECE OF WORK BY THE DUTCH AND BRITISH NAVIES AND TUG-MASTERS: When the German onslaught broke upon Holland there was in a Dutch naval construction yard a cruiser in the half-constructed stage. When the situation in Holland became very threatening it was realised that this Dutch warship must not be allowed to fall into enemy hands. The cruiser was rapidly prepared for putting to sea, and in a short time English and Dutch tugs were towing her across the Channel, and eventually to a British dockyard where she is now completing to take her part as an Allied warship

DAY AFTER DAY THE CONVOY WORK OF THE NAVY CONTINUES: Amid all the alarums and excursions on land, the Navy continues its good work of shepherding the convoys of merchantmen through the dangerous waters around our coasts. The convoys may have come from afar. Witness this one which is crossing the southern part of the Bay of Biscay. A great number of Norwegian, Danish, and Dutch vessels are now available for the carriage of British goods

LONDON'S WAR-TIME FIRE-FIGHTERS

The Work of the Men and Women Who Form the Capital's Fire Defence Organisation

By NOEL THOMPSON

IT has taken 728 years for history to repeat itself so far as one item of the fire-fighting defences of London is concerned. Circumstances and scale are, of course, unimaginably different, but the repetition remains. In 1212, owing to the risk of fire, it was decreed that every alderman should "keep a crook and a cord," and it was recommended that a "vessel full of water should be placed before every door."

In 1940 it is recommended that every good citizen should have a pail or bath of water on every floor, and if you substitute a stirrup pump and a long-handled shovel for the crook and cord, then the parallel is fairly complete.

Luckily that is where the parallel ends, for whereas in the year 1212 that was the extent of the precautions, London is now more fully prepared to meet the danger of fire than ever before in her history, and that under raid conditions.

Shortly before and after war was declared there was a great rush to augment the regular fire brigade and thousands of men and women were to be seen in the familiar Auxiliary Fire Service uniform. The Fire Brigade had its own plans, but man power was urgently needed. Nine months of uninterrupted training and practice have naturally made a vast difference of 100 per cent. added efficiency and confidence.

I have just returned from my first visit to the headquarters of the London Fire Brigade since those early days in September when for three nights in pouring rain men and women sweated filling sandbags, and as I started to shovel sand from the fifth three-ton lorry in one night a "regular," working bare to the waist beside me, said cheerfully, "I hear we have 3,000,000 bags to fill altogether"! Those were hectic days and nights. Now everything is coolly smooth-running.

I want to make it clear that the facts and figures I am going to give apply to the London County Council area of twenty-eight Metropolitan boroughs stretching roughly from Hammersmith to Woolwich and Wandsworth to Hampstead, an area of 118 square miles. The very latest approximate figures of those guarding that area day and night are 15,300 men, 3,000 women, and 1,250 youths working full time, and about 6,000 men, 1,500 women, and 1,000 youths part time, or just over 28,000 people in all. But even this is not sufficient, and a big appeal is being launched this week for more men to act as fire-fighters. They must be between thirty and fifty (over thirty the A.F.S. becomes a reserved occupation) and pay is £3 a week. Duty is continuous, with a day off every third day.

But to return to London's fire defence organisation. Naturally, first word of an air-raid warning reaches them and passes to every station and sub-station at once. The lay-out is that the River Thames is the boundary between the northern and southern divisions, which are each divided into three districts, A, B, and C, north of the river, and D, E, and F, on the south side. In each of these districts, which are under a superintendent, there are ten or twelve fire stations, making fifty-nine in all. In war-time each of these stations has in its area five or six sub-stations (such as you have seen in schools and garages) to a total of about 350. All these are linked and inter-linked telephonically, and in case of accidents by dispatch riders also, with an elastic cohesion so that fire-fighters and pumps can be rushed to concentrate on danger spots if an emergency arises.

Let us suppose that a raid is taking place on London and that incendiary bombs are being dropped, and see how the organisation will work. First, the public's part, which is vitally important, for incendiary bombs can be dropped by the thousand—they only weigh usually about 2½ pounds—and obviously our fire-fighters cannot deal with every potential outbreak.

Water mains may be burst and taps not running, so keep water available, if necessary in the bath. Five or six gallons of water with a stirrup pump is sufficient to spray out—never squirt out—one of these bombs. To call the fire brigade do so (i) either personally or by messenger to the nearest station or sub-station—telephone lines may be jammed, (ii) tell an air-raid warden or policeman, or (iii) go to a fire alarm. There is one within 440 yards of any spot in the London area. It may have been disconnected by bombs, but the public should notice that there will be an indication there where the nearest fire station is—and this should be studied now and not in an emergency in the dark. Cycles, motor cycles, or cars will visit all fire alarms at frequent intervals, so wait near it. I must stress these precautions for on them depends the organisation of our fire defences to a large extent.

NERVE CENTRE OF THE LONDON FIRE REGION: The London Fire Regional Control Room where the mobilising and directing of fire-fighting appliances all over London is carried out by means of maps, etc. As apparatus is rushed from one district to another its exact position is pegged on to the wall map while telephone instructions are sent out to the sub-stations by the A.F.S. girls seen on the right of the picture

NOW A FAMILIAR SIGHT: A sand-bagged emergency water tank from which supplies of water are drawn in the event of a burst water-main during enemy bombardment

Within minutes or seconds the fire-fighters and pumps will be on the spot. And what is the equipment? Every one of the regular stations has two of the familiar red fire pumps, capable of pouring out between 700 and 900 gallons of water a minute.

Probably you have noticed the grey engines recently in the streets, known in the Brigade as the self-propelled heavy units. They have a similar output of water. Then there are the four-wheeled trailer heavy units, used for water units, which also work up to 900 gallons a minute. In addition there are the trailer pumps at sub-stations which fall into two categories, those supplying between 350 to 500 gallons and those under 350 gallons.

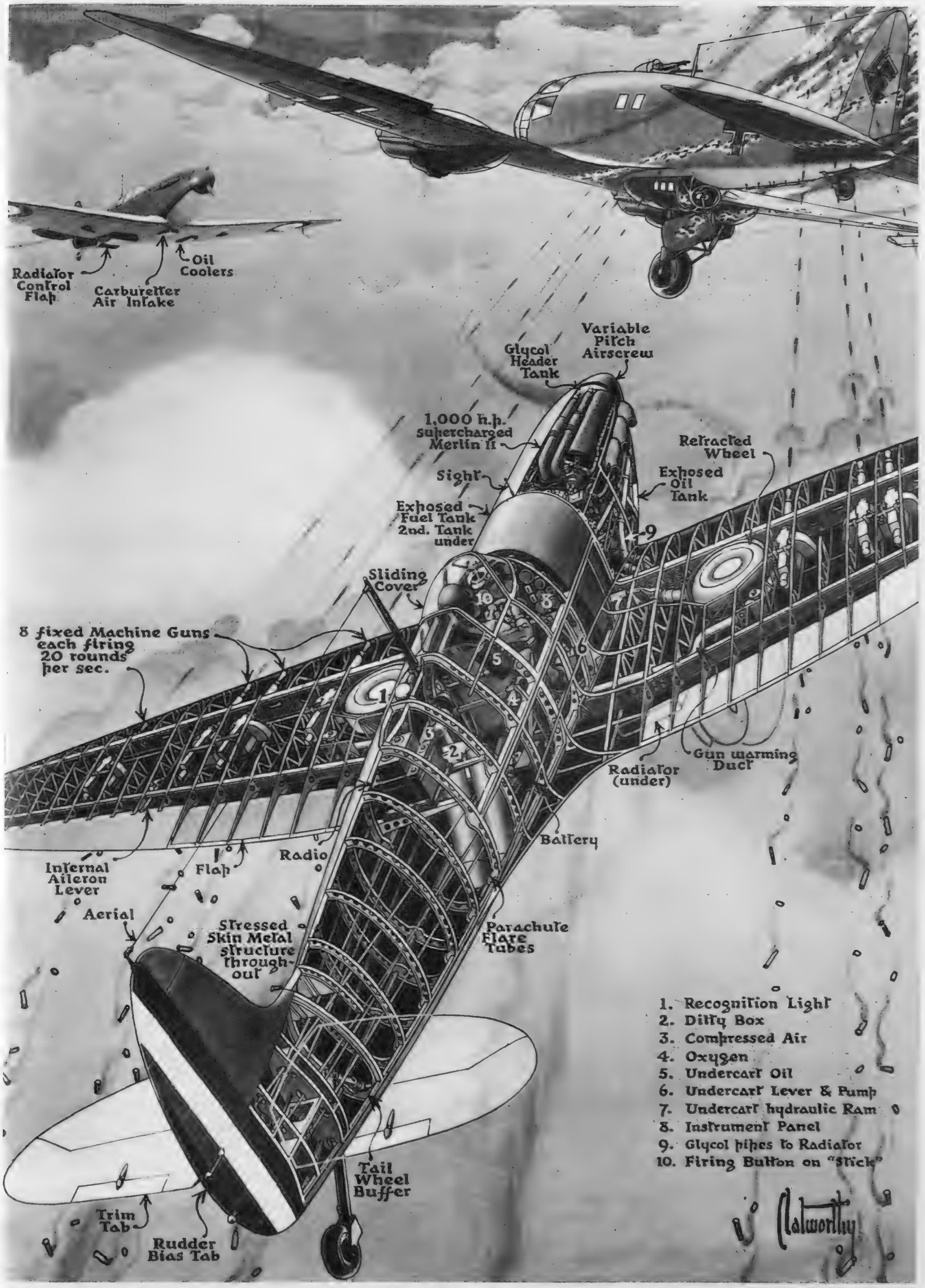
Supposing that the decontamination, demolition, first aid or rescue squads are needed? The policeman or warden on the spot will telephone or get in touch with the local A.R.P. headquarters for the area, so that duplication of messages will be avoided, and headquarters will be able to keep a check on where every section is. In the same way the summoning of the electricity, gas or water companies will be summoned direct from headquarters if needed.

So far I have said nothing about the water supply. High explosive bombs may shatter mains, but there are thousands of miles of intercommunicating mains and every one of them is mapped. In peace-time there are special water units. Now there are numerous emergency water units each of the personnel of which has been trained to know where alternative supplies of water are available At stations and sub-stations are water unit lorries carrying sixty 100-ft. lengths of hose, or over one mile. It is their duty to wait for orders in case of failure of supply, and then to dash to the most convenient alternative water supply available and set in the pump. The hose lorry then drives off, paying out the hose to make connection with the engines or supply a dam. As I say, the water units will know half a dozen alternative sources from which to draw.

And now for the dams, for that is the correct name for those steel affairs which to the public are just water tanks. There are more than 1,000 of these now and the number is still increasing; each holds 5,000 gallons. If there is not one of these steel dams available, there are the portable canvas dams, which can be quickly filled. These hold 1,200, 1,500 and 5,000 gallons. Set up at any convenient point, the water units will keep these brimming as the fire pumps draw from them.

London is well supplied with water, but for such abnormal needs as might come every possible source has been brought into use. The River Thames, of course, has its regular and emergency fire service, with pumps for fighting from the water, or relaying the water to the land. From my window as I write I can see a new grey arrival, labelled Fire Barge No. 1. These barges can traverse the canals and can supply limitless water either direct to a pump on land or to a dam. The new trailer pumps can be taken anywhere, and are so easily handled that they can be run down a canal bank to pick up water, or backed down narrow pathways. In the last few months of the survey of London's surface water in case of raids special paths have been made through gardens and parks to lakes, and holes have even been cut in swimming bath walls so that suction hose can quickly be run through and the supply tapped.

Can anything more be done to protect London from fire from the skies? Nothing, says the Fire Brigade, except to drill into the public the part they must play, and to recruit more men. The army, munitions, and resignations are causing a wastage of men, which must be made good.



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Drawn by S. W. Clatworthy

BRITAIN'S DEADLIEST FIGHTER

A Sectioned View of THE SPITFIRE, which has Destroyed Hundreds of Enemy Aircraft

This diagram shows a Spitfire—the deadliest fighter yet in general use—blasting a Heinkel bomber in a second or two with the shattering rasp of her eight guns, whilst emptied cartridge cases and links of the belts, which disintegrate on firing, stream behind from 160 bullets per second. The Spitfire is lighter, smaller, faster than the famous Hurricane, and is no less manœuvrable. Her speed is now 390 m.p.h. Those now fighting in France are based in Britain; Hurricanes in France. The Spitfire's thoroughbred lines are derived from Schneider Trophy racing progenitors. The diagram gives some idea of the subtly drastic paring down of weight in every component, which yet adds to the total strength. Shell-guns are now mounted in some Hurricanes and Spitfires, but this indicates a difference in function, not a supersession of armament. In the drawing the Heinkel bomber is shown with one wheel dropped owing to damage to the retracting gear, not at all an unusual sight these days

ALONE THEY DO IT: The fighter pilot of the Hurricane is at once captain and crew of the plane he controls. He is held in position by the broad bands of the Sutton harness: the other bands are part of his parachute harness. His right hand is on the plunger button which operates the eight rapid-fire guns which his plane carries in its wings. This is shown in the Clatworthy diagram of a Spitfire—on page 313. The ear-covering with its zip fastener across the centre is part of the wireless telephone equipment with which he keeps in touch with the ground and other fighters

THE "BEFORE-BREAKFAST" BAG and a Flight-Lieutenant who less "just before breakfast," and that enables us to see

The record of the Allies in the air was particularly striking last week. No bag seemed too big for the fighter pilots of the R.A.F. who took on clouds of Messerschmitts over the Dunkirk area in their determination to defend to the uttermost their comrades fighting their way out to the sea. At the same time, the heavy bombers made successful attacks by night over Western Germany and bombed military objectives, thus helping to slow up the German thrust. The air fighting was at times carried out in difficult weather conditions, the spell of cloudless skies breaking from time to time. *On right*—A group of young English air aspirants training at home as pilots and observers

FROM FAR UP THE ST. LAWRENCE RIVER: The way in which Canada has rolled up to the call of the Empire in the present struggle is very heartening. From the very start there was an instant response and the satisfaction of spirit which comes with it. This young pilot has been getting his first training at Trenton, Ontario. After a series of courses, far from the smoke of battle, these young pilots will be coming over here to take their places in the fighting line

A GROUP OF FRENCH PILOTS WHO HAVE BEEN FIGHTING SIDE BY SIDE WITH THE R.A.F.: These members of the French Armée de l'Air have lined up for the benefit of British readers before starting out on the morning's work. Their equipment, though essentially the same, differs in actual detail. The telephone equipment is in their

AR IN AIR

Men who are cendancy in Britain

WAS ONE OF THE FIRST SLOGANS OF THE AIR WAR: A Pilot-Sergeant have had a good useful bag are here seen congratulating themselves, doubt- as the saying goes. The Flight-Lieutenant has already put on his pipe, how the helmet and the telephones look when pulled off after landing

CANADA HAS SENT US BUDDING PILOTS: Hundreds of young men from all parts of the Empire are now training hard to gain R.A.F. proficiency. The fame and the bouquets which the pilots over in France have been winning have made them anxious to get into the saddle. This young Canadian, as he stands here in his flying kit, appears to be a mass of zip fasteners!

case like a loud-speaker microphone and is here seen hanging on the chest. There is a fifteenth-century touch about the head-dress. The French Air Force has been in constant operation over the French troops in and on the borders of the evacuation triangle. Twenty tons of explosives were dropped in the Abbeville district with destructive effect at the beginning of the week

BOMBER PILOTS HAVE AN AIR OF THEIR OWN: The pilot of a big expensive bomber is a brother of the young dare-devils of the Spitfires and the Hurricanes, but there's a difference. He is controlling a very big twin-engined craft, has a crew stowed away all over the plane, and he has a definite job to do in a particular way. All of which indicates that the bomber pilot has measures of success which are particular to his branch of the service

SALVATION BY AIR

The Already-established Superiority of the R.A.F. Machines and Personnel May Well Prove the Deciding Factor in this Struggle.

By CHARLES G. GREY
(Founder of *The Aeroplane*)

IN such grave days as these, when one is discussing any of the King's fighting forces one is somewhat in a dilemma. If one adopts the air of jaunty optimism which until recently made many official communications so irritating to those who knew better, one may encourage among one's readers an unjustifiable feeling that all is well and that there is no need to worry and that John Citizen can sit back and read his morning paper and do his crossword puzzle or fill in his pool coupons, or go dog racing or horse racing with a clear conscience and confident mind. And that, I hold, is not the right attitude for a citizen of an Empire which is fighting for its life.

If, on the other hand, one is pessimistic, or one directs attention to a particular thing which is definitely wrong, or if one tells the whole truth as distinct from nothing but the truth, one is liable to be charged with being a Fifth Columnist and decreasing the people's will to victory. And yet I am certain that the essential Englishman will face up to a grave situation better and with a stouter heart if he knows that he is being told the whole truth regardless of its unpleasantness, and does not feel that the worst of the truth is still being hidden from him. Until he knows the whole truth he will not put his whole strength into whatever he may be doing for the country.

Look at the disastrous Norwegian adventure when we were at least a month too late in doing what we did, and consequently had no aerodromes from which to operate our fighters, with the result that the German bombers practically had the sky to themselves in spite of the great gallantry of that squadron of Gloster Gladiators which did manage to operate for a little while from a frozen lake.

If we had rushed the aerodrome at Stavanger and had got hold of Trondhjem and Bergen first we might have held the Germans out of Norway. Our bombers were able to operate from aerodromes at home in spite of some 300 miles of cold North Sea, but we had no fighters. We were not driven out of Norway by the German Army, but by the German Air Force, and yet if anybody who could see what was coming had said that in print before our defeat he would at once have been denounced as a Fifth Columnist.

Those who wrote jauntily about Norway being Hitler's Peninsular War and about the ability of the British Navy to batter its way into Norwegian harbours and so forth were encouraging false hopes, and the reaction after the failure of those hopes, plus the fact that we have not yet been told what really did happen in Norway, has had a more depressing effect than would a statement of the whole truth. Sailors, soldiers, and airmen back from Norway are telling stories which exaggerate as they spread.

On the other hand, we do seem to be able to get near the whole truth of what the Air Force has been doing in France, Belgium, and Germany. Whatever may have happened by the time these notes appear we can form a fairly just estimate of the work of the R.A.F., and it is far better than anything we had a right to expect, considering the way the Air Force was starved and neglected for fifteen years before the outbreak of war.

More than that, its success is far greater than the Air Force itself ever hoped it might be. When Air Marshal Sir Philip Joubert de la Ferté, in his broadcast, spoke cheerfully, but not jauntily, of three-to-one being the normal odds against the Air Force he was merely stating a fact. The R.A.F. always expected to have to fight against superior numbers but not quite at that rate, and now that it has come to regard three-to-one as normal it feels that longer odds are reasonable.

Analysing the reason for this superiority is interesting. Naturally the easiest explanation is that any one Englishman is superior to any three Germans. But nobody who has fought Germans hand-to-hand on the ground will think so.

If one wanted to generalise, one might say that the Englishman has always been a better cavalryman than the German and that flying fighter aeroplanes needs the cavalry spirit. There are plenty of Germans who are first-class pilots. General Udet, the chief of the German Technical Services, is one of the most brilliant stunt pilots in the world. And during the past few years we have seen German exhibition pilots in this country doing things which our very best pilots are too sensible to do. But, after having seen a great deal of the German Air Force during the past five or six years, I do think that the average German pilot, although he is an excellent airman, using the word in the same sense as one uses the word "seaman," and very brave and methodical, just lacks that quickness and that talent for improvisation which is a characteristic of the British.

REARMING THE FIGHTERS: The ground crews always have plenty of work loading the thousands of bullets for the eight Browning guns of these Hurricane fighters. The long belts are carefully folded into the wing section containing the machine-guns

LIKE A SNAKE, BUT MORE DEADLY: One of the long ammunition belts being fed into the wing of a Spitfire. In this type of machine the belts are inserted from below. A detailed sectional diagram of a Spitfire will be found on page 313

Apart from that, we were undeservedly lucky in having two makes of single-seat fighters which have been from the very start superior to the German fighters. Our eight-gun Supermarine Spitfire and Hawker Hurricane, both of them comparatively old aeroplanes in design, carry a greater fire-power than did the original German Messerschmitt and Heinkel fighters, and are more manœuvrable. There seems to be little difference in their speed but if our people are higher up they can get their added speed by diving and, if they happen to be underneath and are not caught unawares, their quickness in manœuvre gives them the needed superiority.

What is more surprising is that our single-motor eight-gun fighters have also proved themselves superior to the Messerschmitt 110's, which carry cannon as well as machine-guns. The explanation there, I think, is that a twin-motor fighter is not manœuvrable and is only superior to good single-seat fighters when it is making a straight attack and can bring its heavier armament into action at a range greater than that of defensive machine-guns.

Against bombers that superiority only holds good in daylight. A little single-seat fighter is a very difficult thing to hit end-on, either from front or rear. So against our fighters the heavier armament of the Me 110's is not so effective.

Lastly, and I do not put much reliance on this argument, I cannot help feeling, from what I used to know of them, that the German Air Force has not got its heart in fighting this country. The individual fighting man will obey orders, as troops of all nations have shown when they have had to shoot down their own people in riots and rebellions. But there is a vast difference between fighting people whom you have been taught for years to regard as a national enemy and having to turn round suddenly and fight people towards whom you have felt rather friendly.

Ever since the *Luftwaffe* was formed it has been taught that Russian Bolshevism was the menace it would have to fight. And I think that asking it to turn round and face the other way morally and physically has not done much good to the spirit of the fighters.

We, on the other hand, have no such inhibitions. Ever since we were allowed by our own Government to start re-arming, especially in the air, we have known that we were building up an Air Force to maintain the independence of Western Europe, whether against German aggression or against Bolshevism. And our young Air Force has grown up with the feeling that any enemy from the East is the enemy against whom he intended to fight when he joined the Air Force.

As I write, the grim news has come through of the surrender of the Belgians. Allowing for the speed of modern warfare, they put up a better fight than they did in the last war. On the other hand, our Expeditionary Force was quicker in going to their support. We have heard little about the work of the Belgian Air Force but there seems no reason to doubt their claim to have shot down nearly three hundred German aeroplanes. And we can only hope that many of their pilots may have got away with their machines into France, or perhaps to this country.

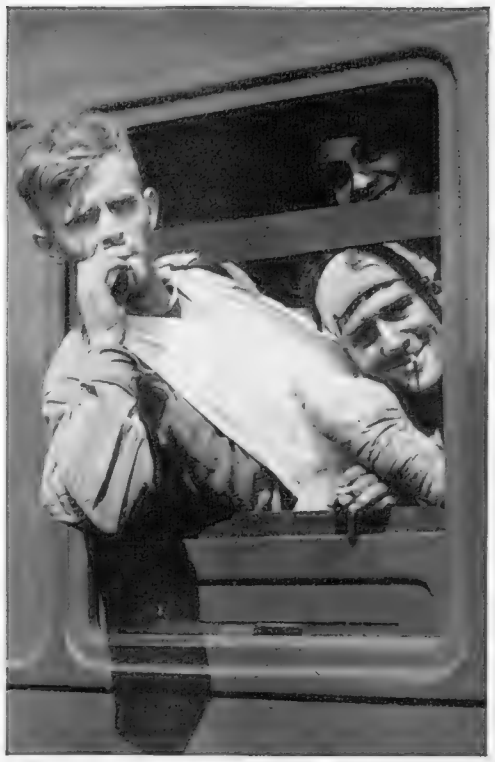
The most satisfactory fact in the whole grim business is the total number of German machines destroyed by the Allied Air Forces and anti-aircraft artillery.

The last figures which seem authentic say that 1,500 German machines have been destroyed since the invasion of the Lowlands. According to an average of unreliable estimates, the total German output of aeroplanes at the outbreak of war was between 1,500 and 2,000 machines a month. Consequently one might argue that the Germans have lost a whole month's output.

Actually it means far more than that, because the total output includes training machines, which represent at least half of the total output, and many odd types such as Army Co-operation machines, seaplanes, and flying-boats of various sorts, which are only indirectly effective enemies, and communication machines, and so forth. Consequently the machines which have been destroyed in the fighting of the past month or so have all been first line fighters and bombers. Thus the quantity destroyed may very well represent between two months' and three months' output of those types.

THIS IS THE WESTLAND LYSANDER of the type which was used for reprovisioning the heroic garrison at Calais. It was specially designed for dropping supplies of food and munitions to isolated troops

HIS ARM IS IN A SLING AND HIS TROUSERS SEEM TO HAVE BEEN SPRAYED WITH SPLINTERS, BUT THIS MEMBER OF THE B.E.F. IS FULL OF VIM



THEY HAD A SMILE FOR ANYONE ON THE PLATFORM AT THE RAILWAY STATIONS AT WHICH THE TRAINS PULLED UP

THE R.A.M.C. WAS IN ATTENDANCE AT THE STATIONS AND SOON THE SCISSORS AND LINT WERE IN EVIDENCE

THE WOUNDED COME HOME

AS WELL AS THE FIT

A DRINK AND AN APPLE REQUIRE SOME HANDLING WHEN ONE ARM IS IN A SLING

THIS BRITISH NURSE WAS HERSELF AMONG THE WOUNDED; SHE WAS ON THE HOSPITAL SHIP "PARIS" WHEN IT WAS MACHINE-GUNNED IN THE CHANNEL

"JUST DRINK THIS. COME ALONG, IT WILL DO YOU A WORLD OF GOOD"

SKILLED HANDS NOW TEND HIM. THIS MEMBER OF THE B.E.F. HAD BEEN WOUNDED ON HIS WAY HOME AND THEN THE HOSPITAL SHIP TO WHICH HE HAD BEEN CARRIED WAS ITSELF BOMBED

BRITAIN WELCOMES THE B.E.F.

Ministering to the Welfare of the Heroes of Flanders

AT A BARN ADJOINING A STATION: All the available villagers turned out to lend a willing hand in preparing meals for the hungry and thirsty men as train load after train load stopped for a few moments at this village station

SANDWICHES BY THE THOUSAND: As fast as these women helpers can cut the sandwiches so they are taken out to the troop trains. The sergeant at the top of the picture is busily engaged in manipulating a bread-cutting machine

A WELCOME CAN OF TEA: A cheery M.T.T.C. girl attending to the needs of these soldiers whose train was stopped for a short while at a wayside station. The men are all in high spirits despite their recent hardships

"PASS THEM INSIDE, BOYS": At every station where the trains came to a standstill even for a few seconds, M.T.T.C. girls were ready with food and drink for the men, many of whom had not slept for days

THE OTHER SIDE OF THE PICTURE: The German wireless propaganda and military communiques have blared forth harrowing descriptions of the B.E.F. evacuation of Dunkerque. They claim to have taken numbers of French and British prisoners. Here are some German prisoners brought to England at the same time—are these discouraged and exhausted men to be taken as representative of the glorious all-conquering German Army?

"Both Schweppes, sir"

The World of Books—By Vernon Fane

SOMERSET MAUGHAM'S FAREWELL

His Latest Collection of Stories Will be His Last

IT is nearly seven years since, with the production of *Sheppey*, Mr. Somerset Maugham announced that he had written his last play. "I am conscious," he wrote, "that I am no longer in touch with the public that patronises the theatre." In that superlatively contrived study of his own character, *The Summing Up*, Mr. Maugham put it beyond question that he meant to keep his word.

Now, in the foreword to **THE MIXTURE AS BEFORE** (Heinemann. 8s.), he puts the closure upon his work as a short story writer with these words, "I have now written between eighty and ninety stories. I shall not write any more."

For all that Mr. Maugham appears to have enjoyed announcing these decisions, they could not have been easy to take. The business of creative work of any sort demands qualities of which a highly developed ego is not the least. Even if we accept Dr. Johnson's dictum that any man who writes, except to make money, is a blockhead, the writer begins with the assumption that someone will be found to appreciate his words. If success, great success, attends upon him, then the ego is tempted to take on the aura of omniscience. People will lap up anything he writes, and it is a heady business to watch one's first editions fetching fancy prices. Then, too, is the British public's incurable reverence for age, which applies to all sorts and conditions of artists. They must have a Grand Old Man.

Somerset Maugham has been fortunate in a career not spoiled by early or easy success. Even to-day his work does not enjoy the wide popularity of less talented writers. Only recently have the panjandrums of the higher criticism begun to assess him in anything like a reasonable perspective. It is from them, more than from anybody else, he has to fear the plant of the laurels upon his brow. The French, to whom he more closely attuned in thought and form, have long recognised and honoured him. The Americans have turned him into a best seller.

The English, ever suspicious of talent in any form, are gradually becoming aware that he is someone to rush to the library for. If they rush for this book they will find, in his own words, *The Mixture as Before*. If they read one story in it, "Lord Mountdrago," with the appreciation for technique, polish, and more than a touch of genius, which it deserves, then they will go back for some of the earlier doses and discover, perhaps, the most significant figure in contemporary English letters.

It is a pity that with a collection containing some of his most perfect work Mr. Maugham should elect to make a farewell appearance. But is it? Somewhere in *The Summing Up* (if my memory is not at fault) there is a hint of more work to come. There will be no more short stories, but, after all, there are stories to be written which need not be short.

Mr. Douglas Goldring is a journalist and a novelist of considerable experience. He is also a man holding forthright opinions on a number of subjects, and a fighter in causes which, but for him and people like him, might appear to be lost.

A volume of miscellaneous memories, impressions and opinions, with an autobiographical flavour, called **FACING THE ODDS** (Cassell. 8s. 6d.) is therefore certain to contain provocative and interesting chapters. Mr. Goldring has been very active in the National Council for Civil Liberties, and has also been a vigorous and vocal member of the Georgian Club, which has so nobly battled against the ravages of vested interests upon the architectural glories of London and other places. In these, and in his excursions into politics, the reader may not always agree, but cannot fail to appreciate the vigour and the sincerity of his attack.

Two chapters on literature as a profession and on reviewing and reviewers contain much common sense pertaining to the profession of authorship; and it is interesting to note that in summing up the vicissitudes of his trade Mr. Goldring arrives at the conclusion that it enjoys certain amenities which balance its trials and that he, for one, would not exchange it. It is a stimulating book.

Dr. Harold Dearden, in his second autobiographical volume, **TIME AND CHANCE** (Heinemann. 12s. 6d.), is another writer who looks back on his career without regret. "The best thing I have learned from life," he says, "is my enjoyment of it. And all I ask of the future is to be as interesting as the past."

Dr. Dearden has been a soldier (the first third of this book is taken up by a war diary), a specialist in neurological diseases, a dramatist, a criminologist, a journalist and, as well, the author of one of the frankest of modern autobiographies. That book, *The Wind of Circumstance*, left off with the outbreak of the last war. *Time and Chance* continues the story.

Candour and a very objective approach to his own life and actions are Dr. Dearden's strongest characteristics. Writing about himself, he gives the impression of being more interested in other people than in himself; and the chapters in which he describes his West End practice and the varied types of patients who passed through his charge are most entertaining.

There is a brief meeting with Clarence Hatry, from which the author emerged £10,000 richer; and it is worth recording for a quite brilliant thumbnail sketch of that wayward financier.

Reminiscences of a very different sort are those of Mr. Jim Phelan in **JAIL JOURNEY** (Martin Secker. 12s. 6d.). This author's previous book, *Lifer*, made quite a stir when it appeared, and this present volume may be said to be complementary to that remarkable book in the sense that it covers the whole period of the author's long jail sentence. It began at Manchester, when it was uncertain whether he was to be hanged or his sentence commuted to penal servitude for life. When the latter happened he moved through various provincial jails until he arrived at Maidstone, and from thence to Dartmoor and afterwards to Parkhurst.

Such was Jim Phelan's jail jou[rney]. But this book is something more th[an a] record of progress through these pla[ces] and of the conditions of each from t[he] point of view of the prisoner. It is a valuable document for all who are interested in penology. His reco[rd] singularly free from recrimination [as] from the condemnation of certain hu[man] elements whom he might very well [have] attacked with all the force of his considerable literary skill. At the same time it is a book which will live as long as social problems attendant upon penology are with us.

Mr. Harry Harper is an old hand at air reporting and, as befits a man who has never been far away from an aircraft since the days when the world was astonished when a crazy contraption lifted itself a few feet from the ground, is well equipped to write a book such as **LADS OF THE AIR** (R. T. S. Lutterworth Press. 8s. 6d.)

Mr. Harper knew the Wrights, saw some of their experiments, actually witnessed Bleriot's take-off on his pioneer cross-Channel trip, saw Latham fail to do the same thing, knew personally all the early heroes, Gustav Hamel, Charles Rolls, Grahame White, Louis Paulhan, Santos Dumont, Col. Cody, Pegoud, A. V. Roe, T. O. M. Sopwith, Benny Hucks, Harry Hawker and dozens of others. He was associated with Lord Northcliffe when that enthusiast was doing everything to foster the new science of aviation and after the war was associated with Holt Thomas in inaugurating the first commercial air line between London and Paris.

This book, supported by fifty-seven nostalgic action photographs, is a record of personalities and progress since those not so far-off days when the aeroplane was little more than a crazy toy. To-day the world lies under the shadow of its sinister development, and it is with mixed feelings the ordinary reader reads of the trials and tribulations, the loss of life and fortune which attended man's conquest of the air. It is significant that Mr. Harper scarcely mentions the years 1914–1918 during which, under the stimulus of war, most progress was made. His lords of the air are nearly all of them civilian pilots. "They wished the world to be made a better and not a worse place by the work in which so many of them sacrificed their lives."

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DEFEATING THE THOROUGHNESS OF THE ENEMY

Motorists Must Take More than Elementary Precautions Against Their Cars Being Started

By A. PERCY BRADLEY, M.I.A.E., A.M.I.Mech.E.
(Clerk of the Course, Brooklands)

SINCE writing my notes for last week things have become, if anything, more serious than before and to have moved faster than anticipated. The result is that it is quite possible that what I write now may be completely out of date by the time my words appear in print and in these circumstances I must crave the indulgence of my readers. Last week the major topic was parachutists and I mentioned that we were all advised to remove the rotor from the high tension distributor. Knowing something of the enemy, so far as motoring matters are concerned, it would not surprise me in the slightest if the parachutist when he lands and gets hold of a car which we in all seriousness thought we had rendered immobile, would quickly proceed to start up the engine.

We must realise that the Germans are nothing if not thorough. We have seen them racing in this country and apart from the terrific speed which their cars attained we were if anything more impressed by their organisation. I think, therefore, that they know quite well that their parachutists must be equipped with something which will make any car go that has the rotor removed because that is obviously the part which we shall hide. I do not know how exactly they will replace the missing part but I think any engineer accustomed to work with such electrical components could quite easily design and produce an adjustable rotor which would fit and work almost in any engine. I rather think, therefore, that we ought to do more to our cars whenever we leave them unattended, in order to prevent them being used by the enemy should he land.

The trouble is that most of the operations which we can perform on our cars take a little time and I am afraid that a great number of motorists still cannot imagine that the parachute peril is imminent. Anyway, I would advise owners, at any rate at night time, to do something to their cars beside remove the rotor arm even if it means spending five minutes or so the next morning in restoring the engine and car to its proper condition.

IT has been decided that we should remove the signposts in this country in order to delay the movements of any parachutists who might land. Switzerland is reported to have adopted this course and I must say there is much to be said in its favour. Someone writing to one of our dailies the other day expressed agreement with the idea but thought it would be quite unnecessary to remove those signposts which only gave the number of the road and not the name of the nearest town. Here again is an example of under-estimating the thoroughness of our enemy.

Whilst I am not at all certain that the removal of signposts would slow down his movements to any great extent I do not think any harm will be done in carrying out this suggestion but to leave up anything which gave the identification number of the road would be foolish because it would convey just the same amount of information as would the name of the town. I have read in the papers, and I have no reason to doubt its accuracy, that the Germans when they invaded Holland brought with them spare spans for the bridges which they knew would be blown up. These spans were exact replicas of the originals, which goes to prove that we are dealing with a highly organised and skilful adversary.

It is practically certain that any parachutist who drops in this country will be equipped with maps of the district and will not depend on signposts at all in order to reach his destination. At the same time, there is a chance that he may not land exactly in the spot previously arranged, in which case he may not be able to pick up his bearings straight away from a map and a signpost might be of use to him. The decision to remove these signposts, therefore, should meet with our approval, as their elimination may possibly delay the movements of the invaders.

READY FOR ACTION: A general view of thousands of Army lorries and trucks ready for duty at a moment's notice at a Royal Army Service Corps motor transport depot in the South of England. Every one of the vehicles is camouflaged

The following statement has been made to the motor industry by Mr. William E. Rootes, the President of the Society of Motor Manufacturers and Traders: "The Commander-in-Chief of the Home Forces has asked me to warn the motor industry, repair shops and garages, that in the event of hostilities within Great Britain, their utmost services would be required immediately in the matter of servicing and maintaining on the roads the vehicles of H.M. Forces. Especially would the motor industry's personnel render invaluable aid by remaining at their posts so long as there is need of their services in any district." The President of the Motor Agents Association has joined forces with Mr. Rootes in making this statement.

Not so long ago an appeal was made to mechanics and others working in garages and service stations throughout the country to offer their labour to the aircraft industry. On the face of it it looks as if there were two entirely opposite wishes expressed, so that we must hope that no confusion will result. Already I know a garage where after the broadcast appeal by the Minister for Aircraft Production the proprietor lost all his employees the very next morning, with the result that his garage, except for what work he can do himself, is as good as closed down. No doubt with the necessary co-operation between the Ministries of Home Security and the Air Ministry the requirements of both can be satisfied.

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THE SPHERE REGISTER OF HOTELS

The majority of these hotels are personally known to our Hotel Correspondent, Mr. Ashley Courtenay, who will be pleased to give further details regarding them to readers who write to him, c/o "The Sphere."

ENGLAND

Aldeburgh.—Wentworth Hotel. Tel. 312 & 313.
Bath.—Lansdown Grove Hotel. Tel. 3235/36.
Bexhill-on-Sea.—Hotel Riposo. Tel. 472.
Bishopsteignton (S. Devon).—Huntly Hotel.
Blackpool.—The Headlands. A.A. & R.A.C.
Bognor Regis.—Royal Norfolk Hotel.
Boscastle.—Welltown Manor Guest Hse. Tel. 17.
Bournemouth.—Bourne Hall Hotel. Tel. 5.
Bournemouth.—Canford Cliffs Hotel.
Bournemouth.—Tollard Royal.
Brighton.—The King's Hotel.
Brighton (Rottingdean).—Tudor Close Hotel.
Bushey.—Bushey Hall Hotel.
Chipping Campden.—Cotswold Hse. Htl. Tel. 330
Crowborough (Sussex).—The Crest Hotel.
Dulverton.—Carnarvon Arms.
Dulverton (Som.).—Woodcote Hotel. Tel. 129.
Exeter.—Royal Clarence Hotel.
Falmouth.—Greenbank Hotel.
Falmouth.—Hydro Hotel.
Folkestone.—Princes Hotel. Telephone 2666.
Folkestone.—Queen's Hotel. Telephone 2219.
Goring-on-Thames.—The Bull. Tel. Goring 57.
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Newquay.—Headland Hotel. Tel. Newquay 2211.
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Paignton.—Redcliffe Hotel.
Penzance (Cornwall).—Queen's Hotel.
Plympton (nr. Plymouth).—Elfordleigh Hotel.
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Sanderstead (Surrey).—Selsdon Park Hotel.
Scarborough.—The Grand. 'Phone: 1053.
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Sidmouth.—Fortfield Hotel.
Sidmouth.—The Torbay Hotel.
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Tunbridge Wells.—The Spa Hotel.

ENGLAND—*continued*

Twyford (Berks.).—Grove Hall Hotel. Tel. 106
Weymouth.—Royal Hotel. Tels. 627 & 628.
Worthing.—Greystoke Private Hotel. Tel. 991.

ENGLISH LAKES

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Keswick.—Royal Oak Hotel.

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Dorset Square Hotel. Off Baker St., N.W.1.
S. Kensington Htl. Queen's Gate Terrace, S.W.7.

SCOTLAND

Gairloch (Ross-shire).—Gairloch Hotel.
Glendevon (Perthshire).—Castle Hotel.
Glen o'Dee (Banchory).—Royal Deeside Hotel.
Grantown-on-Spey.—Grant Arms Hotel.
North Berwick.—Marine Hotel.
Oban.—Alexandra Hotel.
Oban.—Great Western Hotel.
Onich (Inverness-shire).—Creaghdhu Hotel.
Pitlochry.—Atholl Palace Hotel.
Pitlochry.—Pitlochry Hydro.
Rothesay.—Glenburn Hotel.
Skelmorlie.—Skelmorlie Hydro.
Stranraer.—Auld King's Arms.
Troon.—Marine Hotel.

WALES

Llangollen.—The Hand Hotel.
Tan-y-bwlch.—Oakeley Arms Hotel.

NORTHERN IRELAND

Belfast.—Grand Central Hotel.
Rostrevor (Co. Down).—G.N.R. Hotel.

EIRE

Bundoran (Co. Donegal).—G.N.R. Hotel.
Dun Laoghaire (Kingstown).—Ross's Hotel.
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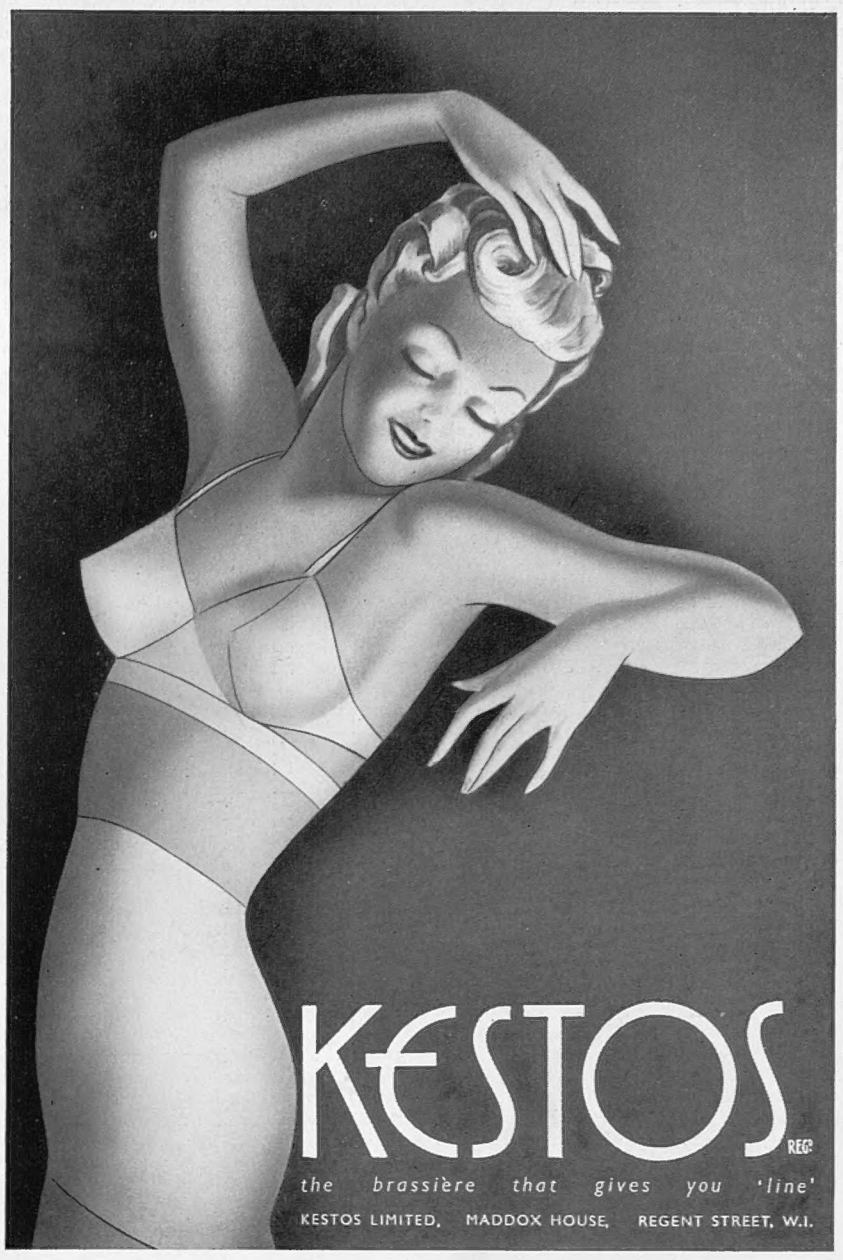

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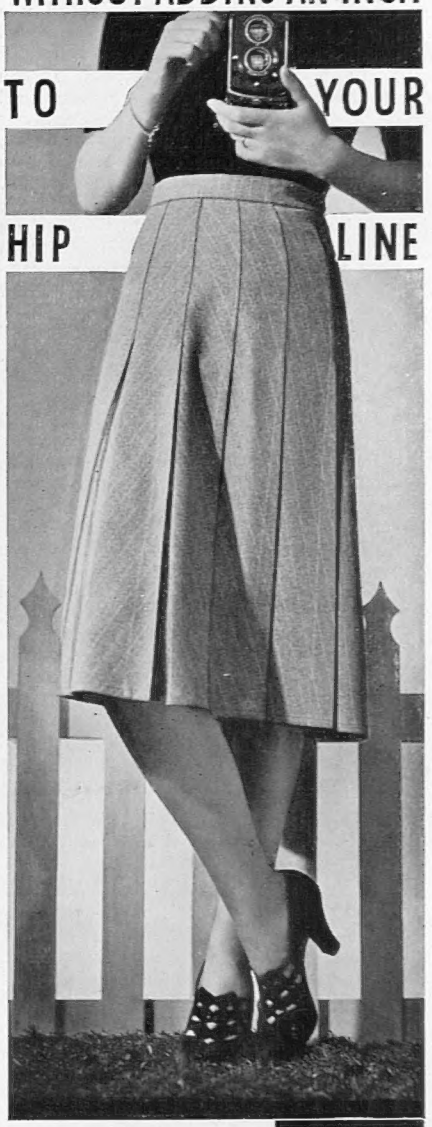

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In Quest of Good Hotels

By ASHLEY COURTENAY

TO be within hail of all the amenities of a seaside town, and yet sufficiently on its outskirts to enjoy all the pleasures of country life is to have found a "site ideal," and to those in search of sun, sea, air and beauty I would say, betake yourselves to the Canford Cliffs Hotel, Bournemouth.

The sound of the sea, the sweet smell of the pines, the poignant beauty of the hotel gardens, will make you forget your worries, while the material comforts that Canford Cliffs can offer will enhance the joy of living. If you want exercise there are *en tout cas* hard courts in the hotel grounds, billiards and table tennis if it happens to be wet, and for the golfing enthusiast half a dozen courses from which to choose. Once set eyes on its welcoming aspect, and though you may pride yourself on never changing your mind, you will change it now, and prolong your stay.

Many of you will ridicule me when I tell you that I have found the ideal country house hotel within ten minutes' travel of the centre of this same town. Laugh if you like, it is a fact nevertheless. On the generously wooded slopes of Branksome Chine stands the Branksome Court Hotel, securely hidden from prying eyes within its six private acres, and so well fortified with trees and flowing shrubs that it is literally impossible to see so much as a slate, let alone a whole roof of a neighbouring building even from its bedroom windows.

Walk down the curving drive and your eyes will light upon a lily pond, home of a dozen flashing golden morsels that turn out to be fish, that cast a languid glance at you as you stop to admire them and then return to the all-important business of—swimming!

Within the panelled entrance hall with its galleried staircase and wide fireplace, your thoughts fly to country house parties at Christmas; as you walk on the thick rugs that scatter the parquet in the bridge club, you visualise dancing. The drawing-room spells rest and relaxation; the light, bright dining-room, with its well spaced, beautifully decorated tables, is certainly conducive to eating. Though the ground floor could easily accommodate about 100 guests there is only sleeping room for about twenty-eight—a nice "country house party" size. Each bedroom has its own colour scheme, and its own matching telephone, and many of them have an attractively unusual feature in common, off-white pile carpets to match the off-white walls.

Mr. Wolf, in whose hands is your welfare at Branksome Court, knows the value of good cooking, and his chef, who shares that knowledge, puts it to the test with admirable results. A large, old fashioned kitchen garden, well walled and productive, supplements his efforts; your "fruit and veg" are grown for you on the spot.

How many people are going to miss their annual trip to the South of France this year? Literally dozens. But because they cannot cross the Channel, they need not forgo a holiday or the chance of basking in the sun. They can even visit the Riviera, though it is a smaller territory than the one they are used to. The Riviera Hotel, Canford Cliffs, is the answer to the sun-worshipper's prayer. High above the sea, facing south of course, its wide windows, verandahs and flower-strewn terrace command a view that is hard to beat. A belt of trees and flowering shrubs slope down from the front door to the golden sands beyond, restful to the eye, delicious to the nostrils, and providing the authentic Riviera touch.

Not that this hotel is dependent on its outward advantages alone—Mrs. Nash Wortham, who runs it, knows better than that! Its lounges are cheerful, its many bedrooms attractively and individually furnished, and it has a dozen bathrooms, a generous quota for a small hotel and one which cuts out the otherwise inevitable "bathroom queue." There is a great air of peace about the Riviera Hotel, and an almost unbelievable quietude, when one remembers that a road runs past its gates, and that it is within easy reach of Bournemouth's shopping centre. In fact, I should say it is the ideal spot for anyone who wishes to relax without being a recluse.

ANSWERS TO CORRESPONDENTS

V. S., Reigate.—Yes, I certainly can help you as regards a London hotel where you will be quiet and where the food is excellent, also the position fairly central. It is the Dorset Square Hotel, Dorset Square, a minute or two's walk from Baker Street. The hotel is run by Mr. and Mrs. Burlington who also own the Boscarn Hotel at Looe, Cornwall, and all the food which supplies their London hotel comes from a Cornish farm.

Mr. Ashley Courtenay is always pleased to advise "Sphere" readers of hotels, both large and small, known to him personally. Letters, accompanied by a 2½d. stamp for reply, should be addressed to him, c/o the Editor, THE SPHERE, *32–34, St. Bride Street, London, E.C.4. Personal and telephone inquiries, however, cannot be accepted.*

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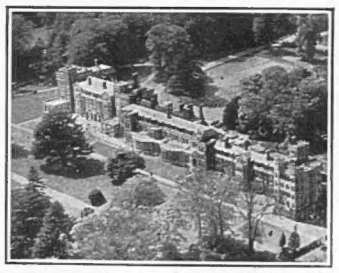

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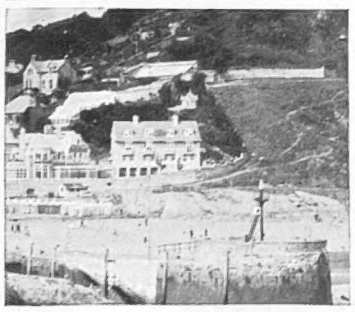

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Telegrams, Fortfield, Sidmouth Telephone, Sidmouth 39

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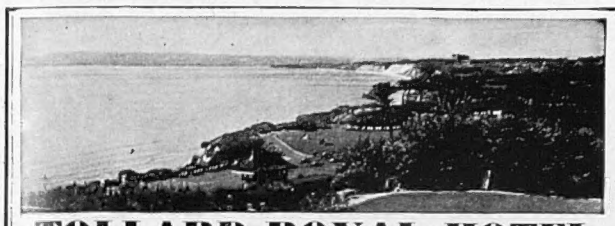

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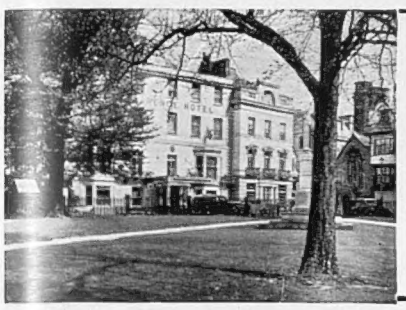

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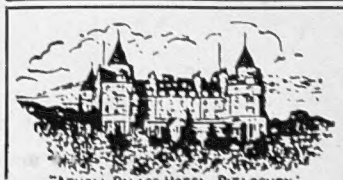

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